

# **NATIONAL BISON RANGE**

**Moiese, Montana**

## **ANNUAL NARRATIVE REPORT**

**Calendar Year 1998**

**U.S. Department of the Interior  
Fish and Wildlife Service  
NATIONAL WILDLIFE REFUGE SYSTEM**

# REVIEWS AND APPROVALS

## NATIONAL BISON RANGE

Moiese, Montana

### ANNUAL NARRATIVE REPORT Calendar Year 1998

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Refuge Manager

2-8-01

Date

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3/2/01

Date

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Regional Office Approval

3-6-01

Date



## INTRODUCTION

The National Bison Range, located in Sanders and Lake Counties, Montana, near Moiese, includes an area of 18,526 acres. It was established by Acts of Congress of May 23, 1908, primarily for the preservation of the animal for which it was named.

The overall mission of the National Bison Range is to maintain a representative herd of bison, under reasonably natural conditions, to ensure the preservation of the species for continued public enjoyment.

Since establishment, however, other big game animals have been introduced onto the area and current management emphasis is directed toward species diversity. Other big game animals currently inhabiting the area include Rocky Mountain elk, bighorn sheep, mule deer, white-tailed deer, pronghorn antelope, mountain goats, mountain lion, and black bear.

Range elevation varies from 2,585 feet at headquarters to 4,885 feet at High Point on Red Sleep Mountain, the highest point on the Range.

The portion of the Flathead Valley in which the Range is located has a microclimate usually characterized by relatively mild winter temperatures and little wind. Snow cover melts quickly at lower elevations. Sub-zero weather is uncommon. Summer temperatures seldom exceed 100 degrees. Precipitation averages 12.63 inches annually at Range headquarters, with slightly more at higher elevations. The growing season averages 90-110 days. Freezing conditions generally occur from late November through March.

The Range is essentially a small, low-rolling mountain connected to the Mission Mountain Range by a gradually descending spur. Much of the Range was once surrounded by prehistoric Lake Missoula which was formed by a glacial dam on the Clark Fork River. The lake attained a maximum elevation of 4,200 feet. Old beach lines are still evident on north-facing slopes.

Topsoil on the Range is generally shallow and mostly underlain with rock which is exposed in many areas, forming ledges and talus slopes. Soils over the major portion of the Range were developed from materials weathered from strongly folded pre-Cambrian quartzite and argillite bedrock. These soils are well drained, steep, and Range from very shallow to moderately deep in parent material. They have a loamy surface horizon with near neutral pH, high organic matter content, and varying degrees of rock fragment. Except for surface soils, lower horizons have a loamy texture with rock fragment dispersals. Water percolation rates are high. Thus, soil erosion rates are minimal.

## INTRODUCTION

A. HIGHLIGHTS .....	1
B. CLIMATIC CONDITIONS .....	1
C. LAND ACQUISITION .....	3
D. PLANNING .....	3
1. Master Plan .....	3
2. Management Plan Nothing to report. ....	6
3. Public Participation See Master Plan, Section D-1 .....	6
4. Compliance with Environmental and Cultural Resource Mandates (CECRA) Nothing to report. ....	6
5. Research and Investigations .....	6
6. Other Nothing to report. ....	10
E. ADMINISTRATION .....	11
1. Personnel .....	11
2. Youth Programs .....	16
3. Manpower Programs .....	16
4. Volunteer Program .....	16
5. Funding .....	19
6. Safety .....	19
7. Technical Assistance .....	22
8. Other .....	23
F. HABITAT MANAGEMENT .....	25
1. General .....	25
2. Wetlands .....	25
3. Forests .....	26
4. Croplands Nothing to report. ....	26
5. Grasslands .....	26
6. Other Habitats .....	27
7. Grazing .....	27
8. Haying Nothing to report. ....	28
9. Fire Management .....	28
10. Pest Control .....	31
11. Water Rights Nothing to report. ....	32
12. Wilderness and Special Areas Nothing to report. ....	32
13. WPA Easement Monitoring Nothing to report. ....	32

G. WILDLIFE .....	33
1. Wildlife Diversity .....	33
2. Endangered and/or Threatened Species .....	33
3. Waterfowls .....	33
4. Marsh and Water Birds .....	34
5. Shorebirds, Gulls, Terns and Allied Species .....	34
6. Raptors .....	34
7. Other Migratory Birds .....	35
8. Game Mammals .....	39
9. Marine Mammals Nothing to report. ....	48
10. Other Resident Wildlife .....	48
11. Fisheries Resources .....	49
12. Wildlife Propagation and Stocking .....	49
13. Surplus Animal Disposal .....	49
14. Scientific Collections Nothing to report. ....	52
15. Animal Control .....	53
16. Marking and Banding .....	53
17. Disease Prevention and Control .....	53
H. PUBLIC USE .....	53
1. General .....	53
2. Outdoor Classrooms - Students .....	56
3. Outdoor Classrooms - Teachers .....	57
4. Interpretive Foot Trails .....	57
5. Interpretive Tour Routes .....	57
6. Interpretive Exhibits/Demonstrations .....	58
7. Other Interpretive Programs .....	61
8. Hunting .....	61
9. Fishing .....	61
10. Trapping .....	61
11. Wildlife Observation .....	61
12. Other Wildlife Oriented-Recreation .....	62
13. Camping .....	62
14. Picnicking .....	62
15. Off-Road Vehicle Use Nothing to report. ....	62
16. Other Non-Wildlife Oriented Recreation Nothing to report. ....	62
17. Law Enforcement .....	62
18. Cooperating Associations .....	64



I. EQUIPMENT AND FACILITIES .....	65
1. New Construction .....	65
2. Rehabilitation .....	65
3. Major Maintenance .....	65
4. Equipment Utilization and Replacement .....	65
5. Communications Systems .....	66
6. Computer Systems .....	66
7. Energy Conservation Nothing to report. ....	66
8. Other .....	66
J. OTHER ITEMS .....	66
1. Cooperative Programs .....	66
2. Other Economic Uses Nothing to report. ....	67
3. Items of Interest Nothing to report. ....	67
4. Credits .....	67
K. FEEDBACK .....	67

## A. HIGHLIGHTS

The National Bison Range celebrated its 90th birthday May 23, 1998. Throughout the year a variety of talks, walks, and special events occurred. See Section H-Public Use.

The Range was visited by Jim Fowler, of Mutual of Omaha's Wild Kingdom. See Section H-Public Use.

Six female pronghorn from the Fort Belknap Reservation were released on the Range to augment the herd in February. See Section G -12, Wildlife Propagation and Stocking.

## B. CLIMATIC CONDITIONS

Precipitation for the year was well within the 45-year mean.

The winter months were moderate with only 9.2 inches of snow falling December 1997 through February 1998, with above freezing temperature causing melting in between snows. New Year's Day 1998 had the high for the winter months of 61°F. The lowest temperatures were also recorded in January with three consecutive days of below 0°F. The lowest was -17°F on January 12.

March and April had below normal precipitation with relatively warm temperature. March had nine days with temperatures above 60°F and April had 17 days. The high for March was 65°F on the 13th with a low of 7°F. The high for April was 81°F on the 22nd and 28th.

Rain began falling May 23 and continued on almost a daily basis through July 5, with the longest break between days being five days without precipitation. May, June, and July all had monthly precipitation totals above average. During this time, on four different days rainfall during a 15 minute period was 0.3 of an inch or more. August, September, October, and December had monthly total precipitation below the 45-year mean. November had nearly double the 45-year average in precipitation, most coming in the form of rain.

During June, parts of the dirt section of the Nature Trail were under water for a few days.

Late spring and early summer temperatures were warm with the high in May of 89°F on the 12th and 87°F on June 30. There were thirty-six days with temperatures more than 90°F during July and August, with 100°F on July 27th and 103°F on August 5th. Temperatures were in the 80s and 90s for the first half of September. While August had several nights with near freezing temperatures, the first freeze occurred September 21. October was a typical autumn month with warm 50°F to 60°F days and cool nights, a low of 10°F on October 10th and 11th.

Two and some half inches of snow fell on December 17th. The nighttime temperatures for the following week were below zero with daytime temperatures in the single digits.

**Table 1. 1998 Weather Conditions**

MONTH	TEMPERATURE		PRECIPITATION		SNOW
	High	Low	1998	45-Yr. Avg.	
January	61	-17	1.43	0.80	6.20
February	58	11	0.17	0.57	1.50
March	65	7	0.58	0.73	1.75
April	81	13	0.96	1.03	0.00
May	89	18	3.44	1.81	0.00
June	87	28	3.28	2.01	0.00
July	100	40	2.35	1.02	0.00
August	103	33	0.06	1.08	0.00
September	100	25	0.65	1.09	0.00
October	70	10	0.36	0.89	0.00
November	50	11	1.89	0.76	1.50
December	48	-30	0.36	0.78	3.50
TOTALS			15.53	12.57	14.45



## C. LAND ACQUISITION

West mailed information on the Mission Valley Conservation Easement Environmental Assessment (EA) in January.

In February, West responded to a phone call from Andy Hallmark, aide from U.S. Congressman Rick Hill's Missoula office. The topic was Land and Water Conservation Fund (LWCF) funding for the FWS easement program in the Mission Valley. Mr. Hallmark conducted a meeting with about 15 landowners and land managers at the Bison Range on April 15.

The EA became available to the public in January. For more information on easements, see the Northwest Montana Wetland Management District narratives.

Manager Dave Wiseman  
and Pat Jamieson, ORP  
with Congressman Hill  
and aide at Ravalli Hill  
Overlook.

2/98

BW



## D. PLANNING

### 1. Master Plan

Comprehensive Conservation Plans are being developed for National Bison Range, Ninepipe National Wildlife Refuge (NWR), Pablo NWR, Swan NWR, and the Northwest Montana Wetland Management District. The preplanning was initiated in July of 1996, with the Notice of Intent to develop the plans being published in the Federal Register in December of 1997. Preplanning, initial intergovernmental meetings, and delays due to political constraints consumed 1997.

Public involvement kicked off the planning process for 1998. Initial input had been provided from three questions in November of 1997, and these queries were summarized into an Initial Input Summary. Early January, this summary along with open house invitations were mailed to the Congressional delegation, media, CS&KT, and County commissioners. Individuals on the mailing list received this information along with an Issues Workbook. A list was developed of all neighboring landowners to Complex lands and they were mailed an invitation to open houses also.

A news release announced three open houses: Missoula, 1/23/98, 3:00-8:00pm; Kalispell, 1/25/98, 3:00-8:00pm; and Ronan, 1/27/98, 10:00am-8:00pm. The general format was to meet folks at the door and talk with them about the setup. Staff circulated among tables of information to answer questions on a one-to-one basis. Comments were taken verbally and transferred to note cards, written on flip sheets by the individual or staff, and issues workbooks and initial input question handouts were provided for comments that could be mailed back to us. Approximately 20 people each, attended the Kalispell and Missoula open houses, with the greatest attendance of approximately 60 at Ronan. Media and congressional staffers attended open houses at Missoula and Kalispell. Many comments centered on vegetation condition, restoration, and invasive exotic plants (see further information on Open Houses in files of National Bison Range Complex, Comprehensive Conservation Plan Open House Summary).

Just prior to the Open Houses it was decided to include some acquisition scoping for the Lost Trail Ranch. Maps of Lost Trail were provided at all three open houses, and Gary Sullivan and John Esperance were present to answer questions. Initial concerns were what uses would be allowed on the tract after acquisition; grazing and hunting were encouraged by attendees. After open houses, Wiseman and Garner attended a meeting with the Big Meadows Grazing Association to discuss Lost Trail acquisition and the possibility of adjacent lands being included in the boundary. A separate scoping meeting was held in Kalispell on May 20 for the acquisition of Lost Trail. The majority of attendees had major concerns with the government acquiring the Ranch.

The open houses generated letters from individuals and working partner offices (e.g., Flathead Joint Board of Control) for further information on the planning process and requests to coordinate. Input was reviewed and analyzed for content. An Issues Working Group meeting was held March 16-18 where each issue was covered for better understanding. The Issues Workbook was summarized. The Scoping Report was developed, finally cleared, and mailed to public early May. A news release announced the availability of the Scoping Report.

In late February, the Confederated Salish & Kootenai Tribes(CS&KT) contacted the Director on coordination with the plan, but at a government-to-government level. This did not affect the planning process. However, coordination meetings were requested with the Tribes. These meetings provided opportune times to request Tribal participation in the planning process. At the end of May, staff requested the Regional Director to meet with the Tribes to discuss the consultation process. The Tribes did not want to agree to their staff participating in the development of the plan until there



was government to government agreement on a formal consultation process. Their concerns were that their staff would put time into the plan, and if the plan changed after it went to the Regional Office, the Tribes would not have a recourse for comment prior to signature. As a result, the goal and objective setting meeting, initially scheduled for May 27-29 was delayed until the Regional Director and Tribal Chairman could speak or meet. Early July the Regional Director and Tribal Chairman spoke and Tribes agreed to participate in the goal and objective setting meeting.

Meanwhile the goal and objective setting meeting was organized, facilitator hired, information was gathered, planning policy and other CCPs were reviewed, questions on FACA were reviewed, and tribal self-governance information was provided to a Region 5 Planning Coordinator, Pam Rooney. The goal and objective setting meeting finally occurred July 21-23. It was well attended by staff, John Grant from MTFWP, Joe Ball from USGS, and Dale Becker, Tom McDonald, and Dennis Clairmont from the Tribes. The congressional delegation was informed of and invited to the meeting, but neither they nor their staffers attended. A private facilitator was hired and proved to be a great help in getting attendees to understand the process and develop alternatives. The meeting resulted in a change in the planning process. It was decided to separate the EA from the Draft CCP, otherwise goals and objectives would have to be developed for each alternative for the alternatives to be treated equal. Alternatives were brainstormed for a few of the issues for the Range, Ninepipe, and the wetland management district. The meeting illustrated that a three-day meeting is too much, and that trying to plan for five different units would take much longer than scheduled.

For August through October the planning process was slowed due to annual leave, training, workshops, and Roundup. Staff worked on data summaries, histories, researched information needs, and alternatives with biweekly meetings to finish out the year. A Ninepipe and Pablo grazing summary was developed; and "The Biologist's Role in CCPs" was presented at the Linking Refuge Biology and Management Workshop in North Dakota by Lindy Garner. Travel to Denver for a planning branch meeting occurred in November as well as Ecosystem Conservation Training in November at NCTC. Questions were sent in memos to the Regional Office concerning land ownership boundaries in GIS, and discrepancies between executive order boundary and existing boundary for Pablo. No response was received prior to end of year.

Earlier in the year, the CS&K Tribal Historic Preservation Office began work on the cultural resources overview. They made field visits during the summer and early fall, and office visits to review historical files toward the end of the year. Their report will provide background information for the plan.

Tribal relations were continued with coordination meetings throughout the year. Planning as well as many day to day issues were discussed. The Letter of Agreement on Consultation Protocol between the Service and CS&KTs was signed by the Regional Director on 12/15/98. It was then sent to the Tribes for signature, but not returned prior to the end of the year.



Ronan Community Center, CCP Open House

PJ 98

## **2. Management Plan**

Nothing to report.

## **3. Public Participation**

See Master Plan, Section D-1.

## **4. Compliance with Environmental and Cultural Resource Mandates (CECRA)**

Nothing to report.

## **5. Research and Investigations**

The Conservation of Genetic Resources in Bighorn Sheep - Jack Hogg, Craighead Wildlife-Wildlands Institute, Inc., Missoula, Montana.

Initial objectives as initiated in 1988 were to:

1. Determine whether reduced genetic variation generates detectable deleterious effects in current environments and in natural populations of bighorn sheep.
2. Provide managers with the means for identifying those herds that are vulnerable to the erosion of their genetic resources.
3. Provide managers with guidelines for using population size enhancement and artificial migration as tools for preventing loss of variation in those herds determined to be at risk.



This research program addresses the issue of genetic viability in populations of large, polygynous mammals generally and bighorn sheep specifically. The research now has two major facets:

1. The development of empirically sound, general principles of genetic management in bighorn sheep and related species of large mammals. Principles that may then be incorporated into each and every facet of a population, regional or species-wide management plan. Effective genetic management requires regionally rather than a population-specific approach. Consequently, this work promises to encourage a more ecosystem approach in which all relevant considerations (habitat, genetics, disease, etc.) are addressed between the various managing agencies and parties in the private sector.
2. The first application of these principles to the design of a specific program of genetic management in the complex of native bighorn herds inhabiting the East Front of the Rocky Mountains from Waterton Park (Canada) south to Rogers Pass in Western Montana.

Biological Control Efforts Against Dalmatian Toadflax - Robert M. Nowierski and Bryan FitzGerald, Entomology Research Laboratory, Montana State University, Bozeman, Montana.

The National Bison Range has been a release site for biological control agents for many years. Since 1992, Lake County and the Bison Range have cooperatively used an employee to guide the release of insects on the Range and other Lake County sites. See Section F-10 for more information.

Grasshopper Research - Gary Belovsky and Jennifer Slade, Utah State University, Logan Utah.

Gary continued his study of plant-animal interactions of a palouse prairie at the behavioral, population, community, and ecosystem levels. He continues to examine five main objectives: 1. herbivore selectivity of plants based on plant quality and abundance; 2. impact of herbivores on plant production; 3. impact of food plants on herbivore populations, including interspecific competition; 4. role predation on herbivores; 5. impact of herbivory on nutrient cycling. For further, information Gary provided a summary of his 21 years of data on the Bison Range ecosystem (see research files). With his long-term observations and data, and reviewing palouse prairie ecosystem literature, he posed three hypotheses: 1. low palouse ungulate productivity may have emerged from competition with the introduced Native American horse herds, but especially the naturally very abundant grasshoppers. Competition among herbivores for food occurs at the Bison Range; 2. the palouse may be an ecosystem where grasshoppers are and have been the dominant herbivores, and they are crucial to understanding the ecosystem's function. The importance of insect herbivores in ecosystem function is little appreciated; and 3. given potential anthropogenic changes in climate and carbon dioxide that can affect insect herbivore

populations, and an ecosystem whose function is strongly influenced by insect herbivores may be particularly susceptible to these anthropogenic changes.

Consequences of Natural Variation in Early Experience in Pronghorns - John A. Byers, University of Idaho, Moscow, Idaho.

This long term study was originated in 1981 and has been carried out by John Byers and his assistants. This basic behavioral study relates the experiences of pronghorn fawns during early development to their social organization, dominance and reproductive success during their adult life. It has been concluded that the first born fawns each year become dominate in the pronghorn social structure throughout their lives. Also monitored were longevity, birth and survival rates which are of value for management purposes. See section G-8f, Wildlife, Game Mammals, pronghorn.

Knapweed Technology Development Project - Nancy J. Sturdevant, USFS, Forest Health Protection, Missoula, Montana

Beginning in 1997, a study was conducted to evaluate the effects of several "key" biological control agents on spotted knapweed.

The objectives were to:

1. Develop monitoring techniques to detect the establishment and spread of two root feeding biological control agents, *Agapeta zoegana* and *Cyphocleonus achates* for spotted knapweed reduction in forested areas.
2. Evaluate the impact of these two agents on knapweed populations.
3. Develop a risk-rating system to determine the optimum forest sites for releases of agents, based upon the site and stand characteristics for five of the most promising root and seed head infesting insects.

In 1998, also several new monitoring techniques for the two root feeding insects were evaluated. These included pheromone trapping for *Agapeta* and sweep netting for the adults of both insects.

Where insects were found on sites at least one year following the release, they are considered to be reproductively established. However, whether or not the insect population is having an effect on the knapweed density cannot be determined from this study. Each site will have to be monitored in the future to make this determination.

See Section F-10, Habitat Management, Pest Control for results.



Summer Activity of Prairie Rattlesnakes on the National Bison Range - Charles R. Blem and Leann B. Blem, Virginia Commonwealth University.

This is the third year of this study, an investigation of the abundance, behavior, and energetics of prairies rattlesnakes (*Crotalus viridis viridis*). The purpose of the study is to determine the proximate constraints on the distribution and abundance of this common reptile. Snakes captured were weighed and their rattles color coded for future identification. Four snakes were implanted with transmitters. Results indicate that there is a thriving population of prairie rattlesnakes present on the Bison Range. Individuals near centers of human activity are most threatened by automobile traffic. There are several sites having rattlesnakes at very remote locations on the refuge and should remain secure if left alone.



Transmitter for rattlesnake research.

Charles Blem photo





Charles Blem with telemetry unit for locating rattlesnakes with transmitters.  
Shirley Blem photo.

#### 6. Other

Nothing to report.



## **E. ADMINISTRATION**

### **1. Personnel**

1. David Wiseman, Refuge Manager, GS-14, PFT
2. William West, Assistant Manager, GS-12, PFT
3. Patricia Jamieson, Outdoor Recreation Planner, GS-9, PFT
4. Joan Krantz, Admin. Assistant, GS-7, PFT
5. Robert King, Maintenance Foreman, WG-7, PFT
6. Loren Clary, Maintenance Worker, WG-8, PFT
7. Darren Thomas, Maintenance Worker, WG-8, PFT-Career Seasonal
8. Lynn Clark, Biological Technician, GS-7, PFT
9. Kyle Todd, Police Officer, GS-6, PFT-Career Seasonal
10. Timothy Driscoll, Animal Caretaker, WG-7, PFT-Career Seasonal
11. Delbert (Skip) Palmer, Animal Caretaker, WG-7, PFT-Career Seasonal
12. Brent Woodger, Animal Caretaker, WG-7, PFT-Career Seasonal
13. Terri Middlemist, Clerk, GS-4, PPT
14. Tana Novak, Park Ranger, (Public Use), GS-2, PFT-Career Seasonal
15. Tracy Shutt, Park Ranger, (Public Use), GS-2, PFT-Career Seasonal
16. Dean M. Vaughan, Bio Tech (Private Lands), GS-6, PFT
17. Lindley Garner, Student Trainee (FW Biologist), GS-9, PFT
18. Joel Carlson, BioScience Tech., GS-5, 5/11/98-7/9/98, FTT
19. Gretchen Fitzgerald, BioScience Tech., GS-5, 5/18/98-7/16/98, FTT
20. Thomas Tuck, Clerk, GS-4, PPT
21. Joanna Behrens, BioScience Aid, GS-5, FTT
22. Robert Breen, BioScience Tech.(WL), GS-5, 5/4/98-7/2/98, FTT
23. Lonnie Trunko, Park Ranger, GS-2, FTT

### **Youth Program**

24. Amanda Repnak, YCC, 6/8/98-8/1/98
25. Kurt Schallock, YCC, 6/8/98-8/1/98
26. Whitney West, YCC, 6/8/98-8/1/98
27. Monty Wiseman, YCC, 6/8/98-8/1/98
28. Lindy Roylance, Montana Human Resources, 6/30/98-9/27/98
29. Mason Seiges, Montana Human Resources, 6/22/98-8/14/98
30. Kelsi Weaver, Montana Human Resources, 6/22/98-8/14/98



20 10 6 2  
1998 Personnel 1 13 12 4 3 5 8 7 11



25 29 27 26  
1998 Youth Staff 28 24 30 JK 98





Johanna Behrens, Seasonal Park Ranger

7/98 PJ

Volunteers  
( who have donated 80+ hours in 1998)

- 31. Dave Herries, public use
- 32. Ervin Davis, bird banding, public use
- 33. Linda Schure, bird study at Ninepipe
- 34. Kathy Roberts, Birds in Forested Areas (former Project Tanager)
- 35. Allison Young, biological weed control
- 36. Mike Johnson, animal damage control

Tana Novak and Tracy Shutt accepted Park Ranger positions in May. Novak moved from a temporary position and Shutt from a volunteer position.

Kyle Todd returned to NBR in April 1998, after completing a detail to Kofa National Wildlife Refuge where he assisted with Refuge Law Enforcement. In October, he was detailed to National Elk Refuge to assist during their fall hunting season, then travel again to Kofa NWR for the winter season.

Terri Middlemist and Thomas Tuck accepted positions as Office Clerks, mid-October. These are Career Seasonal, permanent part-time positions.

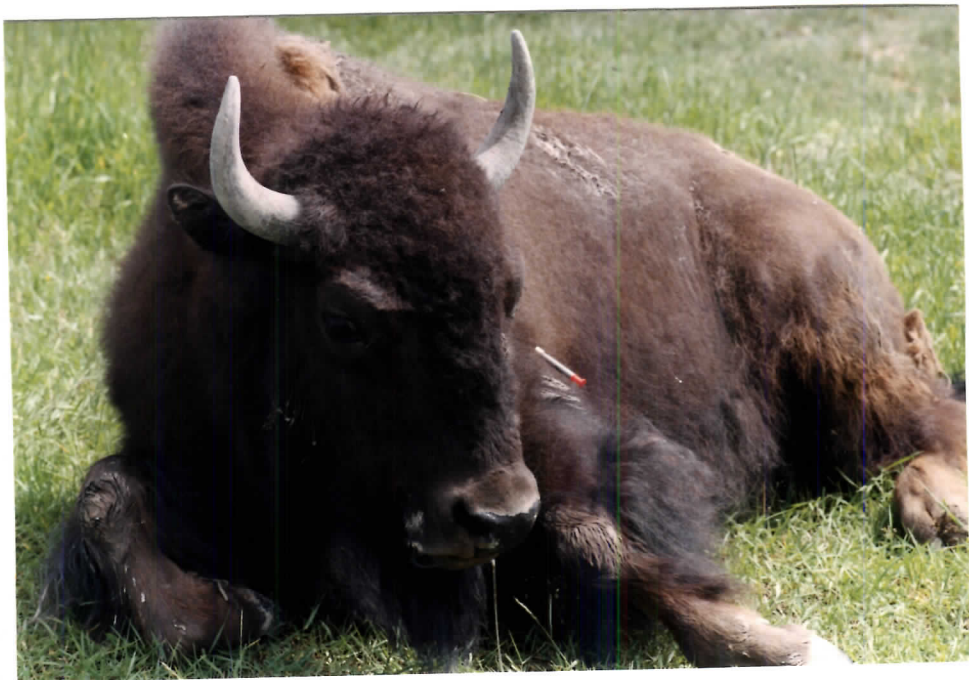
Pat Jamieson and Tana Novak received certification to give basic First Aid and CPR classes. Novak attended a 3-day medical training in Missoula for recertification of her EMT status.

Palmer completed a commercial driving test in Kalispell during March.

The bison immobilization training class was held for two days in June with attendees Wiseman, West, Clark, Garner, Vaughan, King, Woodger, Palmer, Driscoll, and Thomas, and taught by Dr. Tom Roffe, DVM, federal vet from Bozeman, Mt. The class agenda included descriptions of immobilization drugs, their advantages and disadvantages, which drugs are most efficient for different species, safety protocols, stages of anesthesia, drug dosage and calculation, and drug delivery systems. Attendees were divided into teams to work through drug dosage calculation and loading of immobilization darts. Each team then practiced immobilizing one bison in the display pasture and taking blood, and giving the antagonist drugs.



Dave Wiseman and Bill West with immobilized bison LG98





**Table 2. Five year comparisons of NBR personnel.**

	<b>Permanent Full-Time</b>	<b>Career-Seasonal</b>	<b>Permanent Part-time</b>	<b>Term</b>	<b>Temporary</b>
1998	9	7	2	0	5
1997	10	4	0	1	3
1996	8	1	0	6	3
1995	8	1	0	6	6
1994	7	2	0	0	7

The above table does not include 1 PFT, one temporary, and one one-third Private Lands position at the Creston Substation for management of Swan River NWR and Flathead County WPAs.

## **2. Youth Programs**

The Youth Conservation Corps. had four youth enrollees and the Montana Human Resources program had three enrollees. Amanda Repnak, returning for her second summer, was Youth Leader. The youth assisted the maintenance crew with various projects including keeping the picnic area clean, changing irrigation pipe, mowing in the picnic and office areas, and cleaning vehicles weekly. Lindy Roylance spent most of her time retyping Environmental Education Library Folder learning lessons. Whitney West and Kelsi Weaver each spent one day a week in the Visitor Center greeting visitors and helping with book sales.

## **3. Manpower Programs**

Nothing to report.

## **4. Volunteer Program**

The volunteer program continued to be an important source of supplemental manpower for Bison Range activities. A total of 413 individuals put in 3,845 hours on the Refuge this year. This came to a total of \$38,914 worth of work for an expenditure of \$5,775 in supplies and staff time.

Allison Young, recent master degree graduate from the University of Montana, assisted Bill West with the weed problem. Besides looking at purple loosestrife, she worked on writing up a grant proposal to the National Fish and Wildlife Foundation for integrated pest management on toadflax.

Erv Davis, a retired teacher from nearby Charlo, continued to be active in a variety of volunteer areas, working in the Visitor Center, at Roundup, for Game Counts and on a bluebird project. He banded 114 bluebirds on the Refuge and hosted staff from Cornell University about future bluebird studies. Erv received the US Fish and Wildlife Service Region 6 Hero Award for his time and effort in volunteerism at the Bison Range. This was presented to him during Roundup.



Volunteer Erv Davis and Manager Dave Wiseman PJ-98

**Table 3. Volunteers and volunteer hours for 1998.**

<b>Activity</b>	<b>Number of Volunteers</b>	<b>Volunteer Hours</b>
Wildlife Census	83	675
Bird Surveys	5	150
Bison Roundup	27	475
Education Program	8	90
Habitat Improvement	12	225
Antler Collection	272	1250
Visitor Center	4	430
Bluebird Houses and Banding	5	150
Maintenance	3	75
General Assistance	3	325
<b>TOTALS</b>	<b>422*</b>	<b>3845</b>

\*The number of total volunteers in the table exceeds the actual number of volunteers to the Range since some people volunteer in more than one category.



## **5. Funding**

Table 4 lists funding for the Complex which includes the National Bison range, Ninepipe, Pablo, and Swan River NWR's, and the Northwest Montana Wetlands Management District.

**Table 4. A five-year comparison of funding for the NBR Complex.**

<b>FY</b>	<b>1261 Base</b>	<b>6860 Proceeds from sales</b>	<b>Other &amp; 1262 FLEX</b>	<b>O &amp; M Total</b>	<b>8610 Quarters</b>	<b>YCC</b>
1998	803,600	48,100	-0-	851,700	12,500	7,300
1997	610,500	50,000	110,900	771,400	17,972	6,200
1996	602,500	35,000	116,575	754,075	9,610	6,700
1995	574,715	35,000	128,600	738,315	17,972	8,000
1994	555,050	34,700	130,925	720,675	8,000	8,500
1993	464,200	42,000	178,000	684,200	7,800	11,400

There were \$10,500.00 for Bird Surveys, \$2,500.00 for duck banding, \$1,000.00 for midwinter bird surveys, \$8,000.00 for grassland bird surveys and \$6,068 for Fire Management. These funds were not included in the Base and there is no guarantee they will be available in future years. \$5,000.00 for the EE Library and teacher workshops, \$4,000.00 for Swan River boardwalk and signs and \$5,000.00 for kiosks at Ninepipe and Pablo are included in the 1261 base fund. We received \$40,000.00 for a planning biologist position, and \$20,000.00 for reassignment of a biologist from National Elk Refuge to the Creston office of the NW Montana WMD, \$10,000.00 for Lost Trail O&M, \$5,125 for fuel tanks and \$9,800 from proceeds from sales of trailers at the end of the year.

## **6. Safety**

Safety was again a priority at the National Bison Range. Routine inspections by staff kept working areas safe. Fire extinguishers were checked and serviced. Safety meetings were held when concerns arose, and films were shown when applicable. On site, informal safety meetings were held in the field as appropriate.

### NBR 1998 Safety meetings:

February	A film entitled "Stress on the Job" was viewed.
March	Fire physicals were discussed. The crew discussed the elk netting capture and fatalities(elk).
April	Fire safety was again discussed with regard to burning. The fire plan was discussed. Current fire gear and equipment were discussed. A safety video entitled "Fitness and Wellness" was viewed and discussed.
April	A film entitled "Wildfire Standards for Survival" was viewed by the staff involved with fighting fires.
May	A video entitled "Driving Safety, Animal Awareness Training" was viewed. Discussion followed.
June	Pesticide spraying, fire fighting, Limes disease were discussed.
July	CPR and First Aid certification and requalification was done for as many employees, YCC, and volunteers as possible.
September	Disaster protocol (procedures) when all the managers were gone was discussed. Roundup safety for staff, volunteers and visitors was discussed.

There were five reportable accidents in 1998 involving staff. There was one visitor accident that required staff assistance.

Montana Human Resource youth, Kelsi Weaver, was treated for skin punctures from rusty wire. The skin was cleaned and a tetanus shot given. One day of work was lost to see the physician.

Joan Krantz, Administrative Assistant, lost one day of work to have her left eye examined. While unpacking supplies, packing material flew into the eye, and after several days it felt as if the material was still in the eye. There was some scratching and Krantz was advised not to wear her contacts for a week.

While chasing bison on horseback, during the annual Roundup, a bison turned and caught the underside of the horse that Tim Driscoll was riding, flipping the horse and rider to the ground. The wind was knocked out of Driscoll. He was checked by the EMT crew and later experienced some lower back pain but did not go to the doctor. There was no lost time due to this accident.

Loren Clary was securing the tailgate of a trailer when a bison unexpectedly kicked the tailgate, pinning his left hand and lower arm between a post and the tailgate. The only time lost was the time for examination by a doctor for possible broken bones. X-rays were taken and a tetanus shot given.



The doorway to the Wagon Wheel Gift Shop, at the entrance to NBR, was damaged when a Range vehicle rolled backwards and into the shop. (The vehicle was left parked and idling by Joanna Behrens when the accident occurred.) The vehicle's back bumper was bent. No time off from work occurred.

A visitor reported having a bison bull pushed into his mini-van by another bull. The report was taken July 20. The visitors were fine, but denting occurred along one side of the van. They reported the incident and continued on the Red Sleep Mountain Drive.



Damage to mini-van by bison bull.

7/98 TH

On August 23, 1998, a visitor was bitten by a rattlesnake. The victim reportedly had "poked his finger" at the snake while it was lying on the road and subsequently was bitten in the finger. The visitors drove backwards down the Red Sleep Mountain Drive to report the incident to Visitor Center staff. An ambulance was called. Tana Novak stayed with the visitor near his car in the Visitor Center parking lot, until the ambulance arrived. He had a respiratory reaction which was extreme enough for him to be life-flighted to Missoula after ground transport to Ronan, but he was reported in stable condition the following day. There are signs along the drives that warn that wild animals can be dangerous, as well as a caution in the NBR Field Guide.

Big Sky Security conducted their yearly inspection of the security and fire alarms in the Visitor Center in January.

During January the Visitor Center water was extensively tested for organics, pesticides and heavy metals to meet the Phase II requirements for a non-transients water system. This testing was done at the end of a two year period where the water was tested monthly. Results of the test were negative. Testing of the water will now

be done on a quarterly basis. Testing by the State and EPA was done of the well in the picnic area during June.

During August, West completed a "seismic survey" for the Range, to identify items and/or buildings that would be irreplaceable and, as such, in need of strengthening to withstand an earthquake.

Contractors spent a week mid-June removing asbestos from two residences and the slaughter house. Staff worked on the slaughter house after this removal. A safety visit to the Refuge alerted staff to the existence of the asbestos, when results of an earlier inspection had not been returned to the Refuge Manager.

### **7. Technical Assistance**

West attended two meetings of the Citizens for Scenic Lake County to assist the group with conservation easement and planning strategies.

Garner assisted the Confederated Salish and Kootenai Tribes (CS&KT) by delivering maps of each unit of the Complex to Dave Schwab, Tribal Historical Preservation Office, for their cultural resources overview proposal.

The Montana Audubon Society requested background information about the Bison Range Complex along with a few illustrated slides to put together a program to be presented in Washington, D.C.

Michelle Johnson of the National Audubon Society (Washington, D.C.) called to get background information on the Conservation Easement Program and Land and Water Conservation Fund in conjunction with their plans to support the Mission Valley LWCF project.

Jamieson provided visitation numbers for 1991 to 1993 to Lisa Krone of the Interior Columbia Basin Ecosystem Management Team.

A variety of information was provided to a teacher at Greasewood Springs Community School, Ganado, Arizona, who is developing an upper-level curriculum on bison.

A few of the specimens from the Range herbarium were lent to Emily Miwa, Lee Metcalf NWR, for a wetland plant presentation to a high school group.

West spoke to the DNRC land managers on exotic plant control, strategies and biological control options.

Karen Beil, an author of a child's book on wildland fires, requested assistance on captioning of photos she took at the Bison Range.

Robert Hebert, Florida State University, requested slides of a variety of western plants and animals. He has been contracted by the BLM to do a CD-ROM program on Fire for middle school students. Jamieson checked files and sent a list of slides that might fit his needs.

A copy of a slide of the Range's entrance sign was sent to Steve Whitson, Devils Lake NWR, North Dakota, along with historical background for a program he is developing.



Jamieson talked with Hank Schneider, ORP Upper Mississippi NWR, Michigan, about the Range's brochure, how it was done, the new FWS format, and cost of printing.

Jamieson spent a morning in the field with Joe Mussulman, VIAs Multimedia Productions, who is working on the Lewis and Clark web site. He was looking for an opportunity to take a picture of bison prints in mud to illustrate the part of the journals where the explorers complain about walking over miles of sunbaked prints.

Dr. Jonathan Scurlock, Oak Ridge National Laboratory, Tennessee, requested information about the Range for a web site being developed on primary production on grasslands. General information as well as Mel Morris' study and work by Gary Belovsky were sent.

Equipment was lent for the NCTC training held at Ninepipes Lodge, including a slide projector, screen and flip chart/easel. Clark also worked with the instructors of the Wetland Plant class to select appropriate field trip sites.

Dave Kitchum, Humboldt State University, researched through the old narratives for bison numbers and pasture rotations. He is in the process of writing an article using data he collected during a vegetative study he conducted on the Range in the mid-1960s.

## **8. Other**

Wiseman attended an IMPACT training course at the NCTC facilities in Virginia, during February. In March, Wiseman attended the "People Work Group" meetings in Minneapolis and San Francisco, in preparation for the national project leaders meeting in October. He spoke about the Bison Range Complex CCP at the annual conference of the Montana Chapter of The Wildlife Society in Polson. Wiseman attended a meeting in Denver with the Regional Office and the Confederated Salish and Kootenai (CS&KT) in August, to discuss consultation protocol and conservation easements. While in Denver, he gave a talk on Tribal self governance to the FWS national meeting of Native American Liaisons.

Wiseman and Ray Washtak, Assistant Manager, Creston, talked with Flathead Lakers organization on details and concerns over Flathead WPA mitigation provision.

Wiseman and Krantz jointly attended the Administrator workshop and contract training in December in Denver.

West attended the Montana Weed Control Association meeting in Butte and the Montana Weed Trust Fund grant hearing in Lewistown, looking for money to control purple loosestrife. During March, West spoke on Exotic Plants and Public Lands in America at the annual conference of the Montana Chapter of The Wildlife Society in Polson; was part of a panel on "Creating a Sustainable Future" during a symposium sponsored by the Flathead Resource Organization titled "For the Seventh Generation to Come: Environment and Growth on the Flathead Reservation"; and spoke to the Big Sky Upland Bird Club in Missoula. He attended the Hydro Geomorphology training held at Ninepipes Lodge, Charlo, Montana, the week of July 13. West spoke to the National Association of Retired Federal Employees about the FWS easement program



and about past Tribal requests to compact the Bison Range. He attended Native American Law Training in Yellowstone National Park, September 14-18.

West and Jamieson attended the Leopold Education Project workshop at the Rocky Mountain Elk Foundation on March.

Jamieson attended the initial strategic planning session for the Glacier Natural History Association in Columbia Falls on January 22. She attended a meeting at Creston about final plans, designs, and signage for the Swan River NWR accessible boardwalk and viewing platform. Jamieson attended a Principles of Accessibility Training at the National Center for Accessibility in Indiana, March 9-11. She attended the annual Montana Environmental Education Association meeting at Fairmont Hot Springs. A display with information about the Range's Environmental Education Program and 90th Birthday was set up. She judged the Wildlife, Weeds, and Forestry 4-H projects at the Lake County Fair in August. Jamieson attended a Friends Workshop sponsored by the National Wildlife Refuge Association at Ridgefield, Washington in September. Topics covered were advocacy, fund raising, networking and relationship building. She completed an 8-hour Supervision: Fundamental Skills training course on CD-ROM from the NCTC.

Jamieson and Novak helped staff the USFWS table at the State Fair in Great Falls on July 30. This year's theme was the Prairie and Prairie Wetlands. Along with the glassed case exhibits of eagles and wolf, the booth again had the very popular touch table of feathers, hides and skulls.

Krantz and Clary attended a Retirement Training session in Libby, during February.

Clark attended the Montana Partners in Flight meeting in March.

Clark and Shutt attended part of the Advanced Wetland Plant class held at Ninepipes Lodge, Charlo, Montana, in July. The group found a sedge that had not yet been recorded in Montana.

Garner attended an Effective Facilitation training course at the National Conservation Training Center in Virginia, during January. She attended the "Linking Refuge Biology and Management" Workshop in Jamestown, North Dakota the week of August 24-28, where she was invited to give a presentation on the biologists' role in the CCP process. Garner attended Ecosystem Conservation Training at NCTC November 16-20, 1998.

Wiseman and Garner met with the Big Meadows Grazing Association in Hot Springs, January 29, to answer questions about the Lost Trail Ranch acquisition and how they can be involved in the planning process.

Vaughan attended the Partners for Wildlife staff meeting in Great Falls, January 20-23. He attended the Montana Chapter of American Fisheries Society annual meeting and genetics workshop in Helena in February.

Wiseman, West, and Clark attended In service Law Enforcement Training at Marana in February. Todd completed his three months of training at FLETC (Federal Law Enforcement Training Center) at Glynnco, Georgia. Todd attended two weeks of ROBS training at the NCTC facility in West Virginia during July.

Middlemist attended the Ranch Recreation Workshop held by Travel Montana in Missoula on February 12. Clark, Garner, Driscoll, Palmer, Woodger, Jamieson, Todd and Washtak attended a two-day Diversity Training held in Missoula, August 18-19. King attended a maintenance workshop in Minot, North Dakota, August 17-21.

Revenue sharing checks were delivered by Wiseman in June to Sanders, Flathead and Lake Counties. These meetings are excellent opportunities for dialog with the county commissioners. Lake County received \$34,542 for NBR, Swan River NWR, and Lake County WPAs. Sanders County received \$12,192 for NBR.

**Table 5. Receipts collected at NBR in 1998 for deposit to the National Wildlife Refuge Fund.**

Item/Activity	Receipts
Bison Sales	\$171,133.00
Antler Collection Fee (Boy Scouts)	107.00
Special Use Permits	1,190.19
<b>TOTAL</b>	<b>\$172,430.19</b>

## **F. HABITAT MANAGEMENT**

### **1. General**

Nothing to report.

### **2. Wetlands**

Ox bow wetlands along Mission Creek, ponds in the Nature Trail and Education Areas, the Ravalli potholes, Looper Pond and other natural and artificial wetlands along Trisky and Pauline Creeks provide habitats for ducks and a variety of other marsh and water birds. The Bison Range has more than 85 naturally occurring springs that provide water and habitat for many species from big game animals to neotropical migratory birds.

Average January through April precipitation recharged wetlands and kept springs running. Mission Creek and the Jocko River remained high and muddy through the end of July due to double the average precipitation in late spring and early summer.

Private Lands technician Dean Vaughan worked out of the NBR office on many Partners for Wildlife wetland projects in Northwest Montana. These are reported in the Northwest Montana Wetland District Narrative Report.



### **3. Forests**

Areas of second-growth and mixed second-growth/old growth Douglas-fir are of concern due to the wildfire hazard they present not only to those types, but to the old growth stands. Douglas-fir types occur on the north slopes, with most second-growth stands situated down slope from mixed or old growth stands. They have the potential to create fire ladders resulting in crown fires in the old growth. In addition, the thick second-growth creates problems when rounding up or moving bison and reduces forage for ungulates.

To date, primary woody vegetation control method has involved chain saw clearing of second growth fir followed by piling and burning the slash after the danger of fire is past.

### **4. Croplands**

Nothing to report.

### **5. Grasslands**

Clark and Schutt completed vegetation monitoring on 16 of the remaining 17 Parker Three Step Clusters. Grass vigor and growth was good due to the abundant spring and summer moisture. Annual grasses and weeds appear to be responding to the increase in moisture after the droughy years faster than the native bunch grasses and this may be part of the reason for a decrease in score on nine clusters from 1997.

Unit	Transect	Score	Condition	Previous Score	Trend
Basin	CO-1	16	Good	16 - 1997	Same
Basin	CO-23	16	Good	17 - 1997	Down
Northside	CO-13	15	Fair	17 - 1997	Down
Northside	CO-17	12	Fair	11 - 1997	Up
Lower West	CO-5	16	Good	12 - 1997	Up
Lower West	CO-6	17	Good	16 - 1994	Up
Lower West	CO-21	17	Good	19 - 1997	Down
Upper West	CO-2	12	Fair	12 - 1997	Same
Upper West	CO-9	10	Poor	11 - 1997	Down
Upper West	CO-22	18	Good	20 - 1997	Down
Upper North	CO-14	15	Fair	18 - 1997	Down
Upper South	CO-10	20	Good	20 - 1997	Same
Upper South	CO-11	12	Fair	14 - 1997	Down
Upper South	CO-25	19	Good	20 - 1997	Down
Lower South	CO-15	15	Fair	13 - 1997	Up
Southwest	CO-7	17	Good	24 - 1997	Down
Southwest	CO-8			14 - 1992	

Transect numbers that are missing are transects that can no longer be located. Numerical scores relate to the following range conditions: 21-25 excellent, 16-20 good, 11-15 fair, 6-10 poor, 0-5 very poor. Ten clusters (groupings of two to five transect lines in a given area) showed a decrease in Range conditions, one stayed the same, and five increased in condition from the last survey.

## **6. Other Habitats**

Common teasel appears to be increasing in the riparian areas of Sabine Creek and Upper Mission Creek.

## **7. Grazing**

Bison were in the south grazing units January through part of April when the gates were opened to allow them access to Alexander Basin. At the beginning of June they were moved to Upper West (upper Pauline). They were moved to Lower West (lower Pauline), the middle of July. During August the bison were moved to the Mission Creek pasture. By September 21, most of the bison were in the basin, although some were in Upper North (High Point pasture). After Roundup, the bison were put in Upper West, and then moved to the south grazing units (Southwest Range, Lower South, Upper North) for the winter months.

Overall AUM's utilized by bison are estimated to be approximately 3630 AUMs. Foraging by other big game species utilized an estimated 1370 additional AUM's for a total removed of approximately 5,000 AUM's.

### **8. Haying**

Nothing to report.

### **9. Fire Management**

Bison Range staff is fire trained, but primarily serves as a wildfire crew. Wiseman, West, Clary, Driscoll, King, Thomas, Vaughan, and Woodger attended fire survival class held by the Confederated Salish and Kootenai Tribes in April. Staff also took the step test and had physicals to qualify for fire fighting.

During February, West completed the Fire Pro and Hazardous Fuel proposal and sent fire plan information to Carl Douhan. Wiseman and West met with Mike Granger to discuss fire issues in April.

Mike Granger (FMO-CMR) updated staff fire training records, during June.

West worked with Carlos Mendrola, retired FWS Fire Management Officer, to provide information needed to produce a fire plan. The draft plan was prepared by Mendrola during the week of June 8.

Lightning struck a Ponderosa pine tree on June 6. Staff monitored the fire and felled the tree the following morning. Less than a tenth of an acre was affected by the fire.

Range staff, fire management staff from Charles M. Russell NWR, and Bureau of Indian Affairs (BIA) and Confederated Salish and Kootenai Tribal (CS&KT) fire crews worked on a prescribed burn on September 24. About 140 acres of grassland and brush were burned.



Brush thinning  
BW



USFWS Fire Fighters preparing for a long awaited prescribed burn in  
Pauline Creek  
Mike Granger 1998



NBR prescribed burn

Mike Granger 1998





## 10. Pest Control

The Sanders County Weed Board held a public meeting January 7, to discuss a proposal to grow St. Johnswort commercially. St. Johnswort is listed as a noxious weed by the state but with the increased interest in the plant for medicinal purposes, the state is allowing counties to decide if the plant can be cultivated. West, Clark, Garner, and Thomas attended the meeting and expressed their concerns about a weed that the Range is actively trying to control. Another meeting in February was attended by Clark. At this meeting, she presented information to the Sanders County Weed Board on the risks associated with allowing the commercial production of St. Johnswort.

In March, Garner, King, Woodger, and Thomas attended the Lake County Weed Board Meeting to review pesticide application protocols, weed identification and environmental impacts.

In May, Brian FitzGerald, Montana State University, checked on overwintering *Calophasia* insects (toadflax-targeted non-native invasive species).

The Charlo School District was issued a Special Use Permit (SUP) for the collection of St. Johnswort. A total of 15,215.4 pounds of St. Johnswort was picked. The Range received a \$190.19 fee, with a donation of \$760.77 going into the Glacier Natural History Association restricted NBR fund. The School District made a profit, after costs, of \$1296.74.

Volunteer Allison Young worked with West on monitoring the biological control insects on purple loosestrife and other weed species. On June 11, 1,000 *Brachypteralis pulicarius* (Dalmatian toadflax-targeted species) were released on the CS&KT land on Headquarters Ridge just outside the NBR boundary, and 1000 *Brachypteralis pulicarius* were released on Tower 2. On June 21, 200 *Calophasia lunula* larvae were released on Tower 2.

Helicopter spraying of Dalmatian toadflax was done July 2. Tordon (picloran) at one quart per acre was sprayed on 140 acres near Looper Pond, 20 acres on the east side of Elk Lane, and 40 acres on the hill on the west side of Elk Lane.

Sixty acres of Dalmatian toadflax and spotted knapweed were truck sprayed along the Red Sleep Mountain Drive in May. Fifty-six acres of dalmatian toadflax was sprayed on the Range during early June. Headquarters ridge, along the Red Sleep Mountain Drive, and in the Basin pasture near Indian Springs, NW of Jon's Creek north to High Point fence were truck sprayed with Tordon.

In July, Tim Driscoll found diffuse knapweed on the switchbacks in Elk Lane. There were old seed heads among the new plants, so it may have been on the Range last year. The plants were sprayed with Tordon. Approximately one-tenth of an acre was sprayed.

The US Forest Service (USFS) collected *Agatepata* and *Cyphocleonus* larvae and adults at sites within the NBR complex as part of a research project to monitor insects as agents for biological control of spotted knapweed, evaluating impact and

determining optimum site release strategies. Insects were release at the NBR complex sites prior to 1997. The following table reflects information collected.

The number of larvae recovered versus adults sighted at release site - 1998						
Release site	<i>Agapeta</i> larvae	<i>Agapeta</i> adults	<i>Agapeta</i> sweep-netting	<i>Cyphocleonus achates</i> larvae	<i>Cyphocleonus achates</i> adults	<i>Cyphocleonus achates</i> sweep-netting
NBR-Jocko North	None released	None released	None released	2	3	2
NBR-Jocko	11	4	1	18	12	12
NBR-Bradshaw	2	0	1	None released	None released	None released
NBR-Agency Springs	36	4	0	None released	None released	None released
Kickinghorse WPA	0	0	0	None released	None released	None released
Pablo NWR	0	0	0	0	0	0

Of the six release sites on the NBR complex, three had live populations of *Agapeta*. Agency Springs was the best NBR site. Compared to the USFS sites, it had a moderate population. Two release sites had viable populations of *Cyphocleonus achates*. The Jocko release site was the best site of all 67 sites the USFS tested.

### **11. Water Rights**

Nothing to report.

### **12. Wilderness and Special Areas**

Nothing to report.

### **13. WPA Easement Monitoring**

Nothing to report.



## **G. WILDLIFE**

### **1. Wildlife Diversity**

The National Bison Range is inherently diverse with a wide variety of habitats supporting numerous wildlife species including bison, white-tailed and mule deer, elk, pronghorn, bighorn sheep, rocky mountain goats, coyotes, mountain lions, badgers, marmots, ground squirrels, rattlesnakes, waterfowl and numerous neotropical migratory birds. Measures to protect this diversity and the native palouse prairie in recent years include the control of nonnative plants, the development and maintenance of water troughs and ponds, the reinforcement of cross fencing with electric wire and control of invasive young growth Douglas Fir. Neotropical migratory birds have benefitted from the maintenance of 60 bluebird houses, and waterfowl from goose nest structures and wood duck boxes along Mission Creek. Studies of palouse prairie vegetation and ground nesting birds are underway to evaluate the best way to maximize diversity within the constraints of enabling legislation for bison and other representative big game mammals.

### **2. Endangered and/or Threatened Species**

During the midwinter waterfowl survey on January 9, Vaughan counted 50 bald eagles compared to the 1996 figure of 56. The flights are flown in Lake and Sanders counties. No flights were attempted in 1997.

Bald eagles were a familiar sight along Mission Creek throughout the winter and were occasionally seen on the Range at other times. A peregrine falcon was observed around the headquarters area on January 30. A grizzly bear was spotted along Mission Creek on June 17 by Terri Middlemist and her family.

### **3. Waterfowls**

#### **a. Ducks**

For information on the Winter Waterfowl Survey see Section G-3b, Wildlife, Waterfowl, Geese.

Nesting ducks that use the Range include mallard, common redhead, northern shoveler, gadwall, cinnamon, blue-winged and green-winged teal, ruddy duck, hooded merganser and wood duck. Winter species include goldeneyes, common merganser and bufflehead. Ducks are most commonly observed along Mission Creek including the environmental education pond and the nature trail ponds; and at Ravalli ponds. Pairs also use a couple of the ponds in Pauline and Trisky creeks and the ponds by the bison corrals. There have been unconfirmed reports of harlequin ducks just outside the Bison Range on the Jocko River.

A total of 31 pairs were tallied along Mission Creek on the duck pair count conducted on May 6. Of these there were 29 pairs of mallards, two cinnamon teals, one blue-winged teal and one pair of hooded mergansers. One pair of mallards was observed in

Trisky Creek, two pairs in Pauline Creek and one pair at the bison corral ponds. Ravalli ponds had two mallards, seven redheads and one shoveler on June 10 and 6 mallards, four shovelers, two ruddy ducks, and a blue-winged teal on June 29.

Other observations of note include a brood of seven class I hooded mergansers observed on Mission Creek along the canal road on June 4th and eight common goldeneyes, 16 common mergansers, five male bufflehead and five female unknown goldeneyes observed on the Christmas Bird Count conducted on December 20.

#### **b. Geese**

Vaughan, USFWS, Dan Lipscomb, CS&KT, and pilot Bob Twist flew over Lake and Sanders Counties for the Winter Waterfowl Survey on January 9. Habitat conditions were average to above average, with the exception of one or two cold spells that pushed some of the birds out of the area. The waterfowl populations, especially the ducks, were scattered throughout the area. Goose numbers seemed to be lower than usual prior to survey data. Waterfowl, primarily mallards and geese, were found to be concentrated on the Flathead River throughout the Flathead Reservation. Some of the more numerous waterfowl included: mallards, 20,578 compared to 25,296 in 1996, American coots, 12,225 compared to 4,265 in 1996, Canada geese, 9,819 compared to 4,663 in 1996, and redheads, 3,955 compared to 1,135 in 1996. No flights were taken in 1997, due to weather conditions.

The goose pair count was flown by Vaughan, USFWS and Dan Lipscomb, CS&KT, with pilot Bob Twist, April 13, 15, and 20. Twenty-seven pairs were found.

The gosling production for 1998 tallied 45 compared with 20 in 1997.

#### **4. Marsh and Water Birds**

Long-billed curlews were recorded a total of nine times on the neotropical migratory bird surveys. The most recorded on any one survey was three birds heard on two different occasions. Eight of the birds were recorded in Alexander Basin and one was recorded on the southwest side of the range. Great blue herons began nesting in some cottonwood trees just west of the east Mission Creek bridge. Soras were heard throughout the spring around the EE campground pond and the marshes on the east end of Mission Creek and at Ravalli Ponds.

#### **5. Shorebirds, Gulls, Terns and Allied Species**

Wilson's Phalaropes were observed in June at Ravalli Ponds. Spotted Sandpipers were recorded on the Mission Creek, Trisky Creek, and Ravalli Ponds neotropical migratory bird surveys.

#### **6. Raptors**

Golden eagles were seen a limited number of times by visitors.

Joel Carlson saw two golden eagle adults feeding a downy chick on June 29, in the Snake Pit area. There may possibly have been a nest on the Ledge.



Golden eagles were observed on the neotropical migratory bird surveys one time in Indian Springs and one time on the southwest side of the range.

Other common raptors of the National Bison Range include northern harriers, red-tailed hawks, short-eared owls, great-horned owls and some long-eared owls. Red-tailed hawks are known to nest along Mission Creek and on the south side of the refuge above the Jocko River. Clark and Jamieson assisted Denver Holt in branding 4 long-eared owlets in a nest just west of the Nature Trail. Three fledged northern sawwhet owls were observed by staff and visitors along the nature trail in May. One of the young was later found dead.

The great-horned owls west of the shop had two nestlings.

### **7. Other Migratory Birds**

The diverse habitats of the National Bison Range support a variety of neotropical migratory birds from grassland species such as grasshopper and vesper sparrows to timber and riparian associated species like the Townsend's solitaire, Lewis' woodpecker and yellow-breasted chat. Point count surveys were initiated in 1992 to obtain an index on species diversity and abundance. Five roadside surveys and two intensive surveys were developed over the next two years. Two more transects were added in 1996 to better survey the grassland areas and to determine use by grasshopper sparrows. (See Table 6 for 1998 results of these surveys.) The data collected in these surveys helped Bison Range biologists to develop a grassland nesting study in 1997.

**Table 6. A summary of 1998 breeding bird survey transect results on the National Bison Range.**

<b>Transect</b>	<b>Times Surveyed</b>	<b>Habitat</b>	<b>Number Species</b>	<b>Total Number of Individuals Recorded</b>
T1/T2	3	Narrow Riparian Pauline Creek to High Point Forest	58	719
T3	3	Open Grasslands Lower West Unit	45	970
T4	2	Narrow Riparian Trisky Creek	53	473
T5	3	Open Grassland Alexander Basin	42	1334
T6	2	Wide Riparian Mission Creek	64	954
T7	3	Grassland West and South boundary	47	534
T8	2	Grassland Turkey Woman to Telephone Draw	54	452
K1	0	Grassland Metal Gate to Trisky		
K2	0	Timber and Grassland Tower II to Tower III		
T5 INT	3	Brushy Riparian Indian Springs	36	520
T6 INT	0	Wide Riparian Mission Creek		



The total number of birds seen was 5956 with 111 different species:

Western Meadowlark-873	European Starling-717	Brown-headed Cowbird-516
Vesper Sparrow-336	Red-winged Blackbird-313	Black-billed Magpie-279
American Robin-216	Rufous-sided Towhee-161	Brewer's Blackbird-129
Willow Flycatcher-128	Grasshopper Sparrow-122	Lazuli Bunting-117
American Goldfinch-100	Eastern Kingbird-100	House Wren-100
Tree Swallow-83	Clay-Colored Sparrow-79	Northern Oriole-71
Northern Flicker-70	Song Sparrow-69	N. Rough-winged Swallow-68
Ring-necked Pheasant-63	Yellow Warbler-62	Black-capped Chickadee-61
Cedar Waxwing-61	Common Snipe-60	Common Yellowthroat-56
Killdeer-56	Chipping Sparrow-53	Mourning Dove-47
Clark's Nutcracker-46	Gray Catbird-44	Gray Partridge-36
Western Wood Peewee-35	American Kestrel-33	Yellow-headed Blackbird-29
Mallard-29	Barn Swallow-23	Mountain Bluebird-23
American Crow-22	Canada Goose-22	Pine Siskin-22
Bank Swallow-21	Rock Wren-19	Red-tailed Hawk-19
Northern Harrier-18	Spotted Sandpiper-17	Black-headed Grosbeak-15
Western Bluebird-14	Bl-crested Cormorant-14	Ring-billed gull-12
Western Tanager-10	Ruby-crowned Kinglet-10	Orange-crowned Warbler-10
Long-billed Curlew-9	Red-breasted Nuthatch-9	Cliff Swallow-7
Lewis' Woodpecker-8	Yellow-breasted Chat-8	Yellow-rumped Warbler-7
Redhead-7	Red-naped Sapsucker-7	Red Crossbill-6
Common Nighthawk-6	Dark-eyed Junco-6	Belted Kingfisher-5
Short-eared Owl-6	Wilson's Warbler-6	Great Blue Heron-5
Dusky Flycatcher-5	Golden-crowned Kinglet-5	Northern Shoveler-5
Hammond's Flycatcher-5	Marsh Wren-5	Audubon's Warbler-4
White-breasted Nuthatch-5	American Redstart-4	Warbling Vireo-4
Sora-4	Solitary Vireo-4	Green-tailed Towhee-3
Western Kingbird-4	Downy Woodpecker-3	Common Merganser-2
MacGillivray's Warbler-3	Townsend's Warbler-3	Green-winged Teal-2
Evening Grosbeak-2	Golden Eagle-2	Osprey-2
House Sparrow-2	Mountain Chickadee-2	Ruddy Duck-2
Pileated Woodpecker-2	Red-eyed Vireo-2	White-crowned Sparrow-2
Ruffed Grouse-2	Blue Grouse-1	Blue-winged Teal-1
Wilson's Phalarope-2	Gray Jay-1	Hooded Merganser-1
Great Horned Owl-1	Least Flycatcher-1	Unknown Duck-1
Lark Sparrow-1	Savannah Sparrow-1	Western Flycatcher-1
Say's Pheobe-1	Veery-1	
Unknown Flycatcher-1		

The pilot year of the Grassland Sparrow Study demonstrated that nests could be found and densities were high enough to conduct a breeding productivity study. The 1998 field season formalized the pilot year with a few changes and additions. The goals of this study were to 1) examine the nest success of Grasshopper and Vesper Sparrows and 2) to determine how weeds may affect nesting Grasshopper and Vesper

Sparrows. The 1998 field season was hampered by rain and potentially low densities of grassland birds. (Spot-mapping data suggest that fewer singing males were present on the plots in 1998 than 1997.) A total of 15 nests were located: four Grasshopper Sparrows, seven Vesper Sparrows, and four Clay-colored Sparrows. Due to the low numbers of nests, nesting data was not reported. To obtain valid measurements of nesting success, a sample of 20 nests per treatment is necessary. This study may not be able to get 20 nests within a year, but if a year does not test out significantly different as a treatment effect, then years can be combined. The long term goal of this study is to gain reliable and valid estimations of the two previous goals; are these species breeding successfully in this isolated tract of a palouse prairie, and how is their nesting habitat affected by the presence of weeds.

**Table 7. Number of nests found compared to number of territories mapped for both 1997 and 1998 on the National Bison Range.**

	Antelope		Turkey Woman		West Loop		Looper	
	1997	1998	1997	1998	1997	1998	1997	1998
<b>Grasshopper Sparrow</b>	4	1	3	1	2	1	3	1
(Number of territories)	(8)	(3-5)	(5)	(3)	(3)	(2)	(5)	(2)
<b>Vesper Sparrow</b>	1	1	4	1	8	3	4	2
(Number of territories)	(3)	(3)	(5)	(2)	(8)	(3-5)	(5)	(2)

Pat Jamieson participated in the Audubon Christmas Bird Count. The count area is the Northeast corner of the Range, as part of the Ninepipe area circle of the lower Flathead Valley Count. The weather was sunny and calm with temperatures from -20° F gaining to 0°F, with 1 ½ to 2 inches of snow on the ground. She counted 1,410 birds of 31 species. This was down 585 birds from 1997, but up two species. The most common species are listed below:

Mallard - 1,075

Black-billed magpie - 59

Black-capped chickadee - 27

House finch (at feeder) - 65

Gray partridge - 37

Canada Goose - 17



## 8. Game Mammals

### a. Bison

Mortality for the year included one 9-year-old cow was found halfway down Elk Creek along the fire guard road, it may have died calving. A young bull was found in Indian Spring in May, and a 4-6 year-old bull was found in the Looper Pond area during July.

The first bison calves were seen about mid-April. A calf was born in the Exhibition Pasture on April 18 and a very late calf was also born October 2 in Elk Lane and then placed in the Exhibition Pasture. The Bitterroot Trail and the High Point Trail were closed for a short time in late-June and early-July due to continued bison activity in the area.

Bison were rotated through the eight grazing units during 1998. See Grazing, Section F-7.

Roundup was held October 5 and 6. A total of 467 animals came through the corral system. Of these, 115 were calves. Nine bulls and one cow were left on the Range and did not go through the corrals. Ninety-eight animals were selected for donations and/or sold. Post Roundup bison population was 379.

Calves were branded with a number 8 on the right hip. Bison being returned to the range were given an annual 5-way booster vaccination for leptospirosis. All bison leaving Montana were TB and brucellosis tested. These tests all came back negative. No bison were vaccinated for brucellosis.

Nearly all bison were weighed, and the results are summarized in Table 8. The heaviest animal was a seven-year-old bull which weighed 2015 pounds.



Darren Thomas and Brent Woodger chasing bison into corrals.

**Table 8. Bison Weights at the 1998 NBR roundup.**

Age	Males			Females		
	Weight Range	Number Weighed	Average Weight	Weight Range	Number Weighed	Average Weight
Calf	169 - 440	63	322	230 - 409	53	336
Yrlg.	620 - 805	34	724	400 - 795	30	638
2	645 - 1180	30	994	730 - 1035	27	866
3	985 - 1390	20	1233	875 - 1025	16	962
4	1335 - 1630	17	1530	865 - 1170	24	1020
5	1510 - 1815	14	1639	855 - 1225	21	1032
6	1475 - 1760	11	1659	935 - 1185	15	1038
7	1690 - 2015	7	1834	980 - 1280	11	1105
8	1445 - 1880	7	1715	990 - 1170	14	1062
9	1700 - 1815	3	1750	995 - 1140	9	1099
10	1645 - 1820	2	1733	950 - 1160	11	1049
11	1835	1	1835	925 - 1195	9	1080
12	1960	1	1960	890 - 1120	2	1005
13	1715	1	1715	1120	1	1120
14	1920	1	1920	840 - 1080	4	985
15	2000	1	2000			
16	1850	1	1850			
17				910 - 1075	2	992

There were 14 special-branded bison identified during this year's roundup as shown in Table 9. Cows brought here as calves from the Maxwell State Game Refuge in Kansas in 1984 are special-branded. Their offspring, when identifiable, have been special-branded since 1987 in order to keep track of the new blood in the herd. Other animals have been special-branded as a means of keeping individual weight and longevity records. They are not removed from the herd in the annual sales and are allowed to live out their natural lives on the Range.



**Table 9. Special-branded bison identified at 1998 NBR roundup.**

Special Brand	Age	Sex	Weights			Comments
			1996	1997	1998	
Bar Over 1	7	Bull	1725	1810	-----	Kansas Mother
Bar Over 0	8	Bull	1685	1750	1760	Kansas Mother
91	9	Cow	1060	-----	1140	Kansas Mother
Bar Under 9	9	Bull	-----	-----	-----	Kansas Mother
Bar Over 8	10	Cow	905	1000	950	Kansas Mother
81	10	Bull	-----	1710	1190	Kansas Mother
Bar Over 7	11	Bull	1795	1870	1835	Kansas Mother
17	11	Cow	1095	1175	1190	Kansas Mother
Bar Under 5	13	Bull	-----	-----	-----	Kansas Mother
Bar Over 4	14	Cow	765	1045	1020	From Kansas
Bar Over 4	14	Cow	940	970	840	From Kansas
Bar Over 4	14	Cow	960		1000	From Kansas
Bar Under 4	14	Cow	975	-----	1080	
1 Left X Right	17	Cow	915	875	910	

At year's end there were 379 bison in the herd. For 1998, there will be 143 breeding age cows. The overall sex composition of the herd, ending 1998, was 46% male and 54% female.

**Table 10. Composition of NBR bison herds  
on December 31, 1998.**

Age	Male	Female	Total
Calf	60	55	115
1	24	22	46
2	20	18	36
3	15	14	29
4	12	16	28
5	12	13	24
6	8	12	20
7	4	10	15
8	4	12	16
9	2	7	11
10+	9	25	27
Unknown	5		
<b>TOTAL</b>	<b>175</b>	<b>204</b>	<b>379</b>



Emily Miwa, Lee Metcalf NWR, Lynn Clark, Ray Washtak at Roundup

10/98 S. B. Nace



b. Annual Winter Big Game Drive Census

The big game count was conducted on October 3. The count is a drive census where the range is divided into eight units and all animals are driven through these areas with the help of 60 volunteers from the University of Montana Wildlife Society and two local high schools. The animals are counted as they are driven out in front of the walking students or when they try to double back. Results from this year's count can be found in the table below.

**Table 11. Results of the 1998 NBR fall big game drive census.**

Unit	<u>Number Counted</u>					
	Elk	Mule Deer	White-Tailed Deer	Pronghorn	Bighorn Sheep	Mountain Goat
1	13	2	91	0	0	0
2	22	43	0	14	0	0
3	30	39	2	15	0	0
4	2	9	0	0	0	1
5	0	30	0	0	17	3
6	13	22	0	7	21	5
7	17	36	3	20	13	0
8	18	13	26	39	0	0
ALL	115	194	122	95	51	9

c. Elk

During March, 30 head of elk were captured and donated to Texas A&M. See section G-13 for more details.



Helicopter capture of elk.

3/98 BW

Visitors sightings of elk included three bulls and nine cows on Headquarter Ridge on February 24; 15 head of cows and calves on Telephone Mountain on June 20; and 30 head, nine of which were bulls on Tower 3 on September 24. Bugling was heard beginning August 26.

A small herd of elk was moved to the west display pasture on March 9. One of these cows was later put down after getting caught in the cattle guard and pulling off her hoof. Another cow was euthenized after two days of hard labor without production of a calf. An elk calf was born on the West loop on May 23.



A bull elk with a bad foot was found dead near the bottom of Triskey Creek in November. The 8x9 rack was salvaged and brought to headquarters to be mounted for display in the Visitor Center.

#### d. Mule Deer

Sixteen head of mule deer were seen on Headquarters Ridge on February 24. There were other sightings along the Red Sleep Mountain Drive during the summer season. Two mule deer fawns were seen on May 16.

Mule deer numbers remain within the target numbers and the population remains steady. A total of 194 mule deer were counted on the annual big game survey in October. Mule deer are common sights for visitors in the evenings along Pauline Creek and from High Point down to Trisky Creek. A small herd also hangs out around the Visitor Center and housing areas where they are a popular tourist attraction. One factor that may be keeping the mule deer numbers in line is increased predation by mountain lions. We will be investigating this further but there has been some evidence that lion numbers on the Range are up and that they are preying on the mule deer, white-tailed deer and sheep. A lion killed mule-deer was found by staff on Looper Ridge in September.

#### e. White-tailed Deer

White-tailed deer, bucks, does, and fawns, were seen with by visitors and staff throughout the year. Most common sightings were at the entrance to the Refuge, along the road to the Visitor Center, and in Mission Creek. White-tailed fawns were seen on May 17.

#### f. Pronghorn

Six female fawns were released on the Refuge on February 4. See section G-12, for more information.

Pronghorn twin fawns were seen on May 29 about 100 feet off the tour road at Jon's Creek. They were seen by visitors throughout the summer, with 22 head seen by Marker #9.



Dean Vaughan and Bob King "scoring" elk.

9/98 JK

Dave Kitchum, Humbolt State University, worked here on a large number of vegetative plots in the 1960's. He was visiting Gary Belovsky and noted pronghorn numbers on August 5 and 6, as follows:

Alexander Basin		Lower West Range	
Adult Does	19	Adult Does	5
Yearling Does	4	Yearling Does	1
Doe Fawns	8	Doe Fawns	0
Buck Fawns	5	Buck Fawns	0
Northside Pasture		Ravalli Ponds	
Adult Does	8	Adult Does	5
Yearling Does	2	Yearling Does	0
Doe Fawns	4	Doe Fawns	1
Buck Fawns	4	Buck Fawns	0
<b>Males</b> - over 4 years old	15	<b>Yearlings</b> Buck	6
- 3 years old	3	<u>Doe</u>	<u>7</u>
- 2 years old	4	TOTAL Yearlings	13
- <u>yearlings</u>	<u>6</u>	<b>Fawns</b> Buck	9
TOTAL Bucks	28	<u>Doe</u>	<u>13</u>
<b>Females</b> - adults	35	TOTAL Fawns	22
- <u>yearlings</u>	<u>10</u>		
TOTAL Does	45		

Bucks	28
Does	45
<u>Fawns</u>	<u>22</u>
TOTAL	95

During the annual Big Game count, 95 pronghorn were counted with 22 of those being fawns.

John Byers, observed the pronghorn from October 5 through October 10. He counted 20 adult males, 26 adult females, 10 male fawns, and 12 female fawns, for a total of 68 animals. He was able to observe five of the six transplanted females; they appeared healthy and still very wary. He also collected tissue samples from one male and two females using a biopsy dart rifle. One of his graduate students will use the samples, as well as tissue from fawn ears collected in 1995 to develop protocols for amplifying pronghorn microsatellite DNA.



### g. Bighorn Sheep

Jack Hogg, Craighead Wildlife/Wildlands Institute, reported that as of June 25, at least 13 and at most 17 adult bighorn sheep ewes were alive, with 18 of the 20 fall rams surviving. At least six lambs were alive with eight mortalities. His mid-July update included 17 ewes (two years old or older) surviving.

One of the transplanted ewes from the Thompson area was found dead in the Spring, possibly a lion kill.

Ray Vinkey and Monica Pokorny, researcher for Jack Hogg, reported that the rut began two weeks early.

Bighorn rams frequented the tour road just off High Point at the end of May. Throughout the month of August, six rams were visible to visitors as they stayed near the Bitterroot and High Point Trails. Todd and Jamieson spotted a large herd of bighorn sheep along the Red Sleep Mountain Drive, at the top of Trisky Creek in September. The group of 30 included a few lambs along with the ewes and rams.

**Table 12. 1998 NBR year-end bighorn sheep population.**

Sex	Age												Total
	Lamb	1	2	3	4	5	6	7	8	9	10	11+	
Male	1	4	4	1	2	3	2	3	1	0	1	0	22
Female	3	2	3	7	0	3	2	1	0	0	1	0	22
Total	4	6	7	8	2	6	4	4	1	0	2	0	44

The end-of-year bighorn population totaled 44. There were 19 females 1-year and older, 21 males 1-year and older, and 4 lambs (one male and three females). Lamb survivorship (birth to end-of-year) was 33% (4/12). There were an unusually large number and percentage of barren ewes (six of 18), only one of which was "old" (nine years; the rest were 2-5 years-of-age). Regarding adult mortalities, one yearling male disappeared in winter and one 10-year-old ram was found dead in May (not predation). One 7-year-old male left the range in November and was not seen again. This ram was one of 3 rams captured at Thompson Falls and released on the Range in 1992. One 5-year-old female and her newborn lamb were definitely killed by a lion in mid-May. Two healthy yearling females disappeared during June-September and are presumed to also be predator mortalities.

### h. Mountain Goats

Best viewing of the goats was from Montana Highway 200, looking back into the Refuge during the spring and winter months. Volunteer Mike Johnson saw nine goats in Trisky Canyon on May 8. Joel Carlson saw 7 adults and two kids in the Turkey Woman county on July 3, and one adult with one kid on July 6.

## **9. Marine Mammals**

Nothing to report.

## **10. Other Resident Wildlife**

### **a. Black Bear**

Visitors and staff reported seeing black bears in Pauline Creek throughout the month of August. Seen regularly were a brown-colored sow with three cubs, and a black-colored sow with two cubs (one black, one brown). The brown-colored sow with three cubs was seen in September also. One cub is all black, one is black with a large white spot on his chest and throat, and one is light brown with a dark brown head.

### **b. Mountain Lion**

One of the Thompson transplant ewes was found dead in the spring, possibly a lion kill. Visitors saw one lion chasing deer on Mission Creek on August 1. Another sighting was at High Point on August 28. Clary reported a dead mule deer buck at Looper Pond, which may have been a fresh mountain lion kill. Neighbors on the north boundary reported having some of their horses attacked, with signs indicating a mountain lion.

### **c. Coyotes**

On May 16, 2 coyotes were seen in the Basin and two were seen in Elk Creek. One was seen near the Visitor Center on December 24.

For information on coyote removal see Section G-15, Wildlife, Animal Control.

### **d. Badger**

Visitors reported seeing a badger near the Visitor Center on May 22. Lindy Garner saw a badger family at the end of the West Loop. Dean Vaughan saw one at Quarters 2.

### **e. Cottontail Rabbits**

Cottontail rabbits were seen with regularly by staff and visitors January through September.

### **f. Other Species**

Visitors reported seeing turtles in the Nature Pond on March 19.

A small footed myotis bat was at the Visitor Center on July 9.

Bull snakes (gopher snake) were seen on the front walk three times during the summer.

An ermine was seen by Montana State University entomologist on December 9.

Charles Blem, Virginia Commonwealth University, received a special use permit to continue his research on prairie rattlesnakes, focusing on the snakes' center of activities and hibernaculae.



\$2,313, this is up \$362 from 1997's average. Twenty-four bison were donated to the Spokane Tribe at Washington State at no cost, through the Inter Tribal Bison Cooperative. Results of the sale are shown in Table 14.

**Table 14. Summary of 1998 Disposal of Surplus Bison**

Group	Number		Successful Bids			Total
	Sold	Donated*	High	Low	Average	Revenue
Yrlg. Heifers	6	2	2579.00	2579.00	2579.00	15474.00
2 Yr. Cows	7	2	3877.00	3877.00	3877.00	27139.00
3 Yr. Cows	2	0	3877.00	3877.00	3877.00	7754.00
4 Yr. Cows	6	2	3877.00	3877.00	3387.00	23262.00
5 Yr. Cows	6	2	3877.00	3877.00	3877.00	23262.00
6 Yr. Cows	3	1	3777.00	3777.00	3777.00	11331.00
7 Yr. Cows	1	0	3377.00	3377.00	3377.00	3377.00
8 Yr. Cows	1	1	3377.00	3377.00	3377.00	3377.00
9 Yr. Cows	1	0	3277.00	3277.00	3277.00	3277.00
10+ Yr. Cows	5	2	3177.00	3177.00	3177.00	15885.00
Yrlg. Bulls	7	3	1111.00	910.00	938.71	6571.00
2 Yr. Bulls	9	3	877.00	877.00	877.00	7893.00
3 Yr. Bulls	4	1	996.00	996.00	996.00	3984.00
4 Yr. Bulls	4	1	1687.00	850.00	1111.25	4445.00
5 Yr. Bulls	3	0	1337.00	850.00	1145.67	3437.00
6 Yr. Bulls	3	1	1210.00	850.00	970.00	2910.00
7 Yr. Bulls	3	1	1310.00	850.00	1003.33	3010.00
8 Yr. Bulls	2	1	1825.00	1410.00	1617.50	3235.00
10+ Yr. Bulls	1	1	1510.00	1510.00	1510.00	1510.00
AVERAGE						
TOTAL	74	24*	SALE	\$2312.61	TOTAL	\$171,133.00
PRICE						

\*Donated to Spokane Tribe of Washington State at no cost, through InterTribal Bison Cooperative.



Table 15 shows the disposition of the bison sold this year. The largest buyer in 1998 was Merle Meier of Longlake, South Dakota, which purchased 32 females (all females age two through 10+ years) and nine 2-year-old males.

The proportion of bison purchased for breeding purposes was 79%. This figure is compared with 81% in 1995, 82% in 1996 and 88% in 1997.

**Table 14. Disposition of 1998 NBR buffalo.**

State	Breeding	Slaughter	Total	Percent
Oregon	0	2	2	2
Montana	12	18	30	31
South Dakota	41	0	41	42
Washington	24	1	25	25
<b>TOTAL</b>	<b>77(79%)</b>	<b>21(21%)</b>	<b>98</b>	<b>100</b>

b. Elk

The Range donated 30 elk (15 bulls, 15 cows) to Texas A & M University for brucellosis studies. These were captured March 26 and 27 using a helicopter netting technique and shipped out on April 1. KPAX-TV (Missoula) filmed part of the capture and aired it statewide on the evening news. During the capture, three bull elk died, two from broken necks and one had to be put down due to a broken leg. All injuries were sustained as a result of the net gunning. These animals were donated to the CS&KT.

A report from Texas A & M in November indicated that all the bulls sent in April had died shortly after arrival. All the cows were still doing fine. It was thought that the bulls may have caught a virus or infection through the porous material in the stub after the antlers were removed for transport.

c. Deer

No deer were removed from the Refuge.

d. Hides and Horns

An elk antler was donated to the Flathead Irrigation Project, which was to be made into a cribbage board and given to an employee who was retiring.

A bull bison skull was donated to Conboy Lake NWR in Washington for use in their Environmental Education Program.

**14. Scientific Collections**

Nothing to report.

## **15. Animal Control**

### **a. Coyote**

Volunteer Mike Johnson, removed nine coyotes from the Refuge in the main pronghorn fawning areas in late winter and early spring.

### **B. Feral Dogs**

Clark investigated dogs running on the Refuge in November.

## **16. Marking and Banding**

Volunteer Erv Davis continued to maintain 36 bluebird nest boxes on the Range. Seventeen were used, six by Western bluebirds and 11 by Mountain bluebirds. Of the 118 chicks that hatched 113 chicks fledged (47 westerns, 66 mountain). Erv banded 114 bluebirds including: 86 mountain chicks, 11 mountain females, and two mountain males, 14 western chicks, and one western female.

## **17. Disease Prevention and Control**

The practice of vaccinating bison heifer calves for brucellosis was discontinued at Roundup in 1997. There was much discussion regarding the use of Strain 19 or RB51 vaccine for bison. All sale and donation animals were tested for brucellosis and the results came back negative.

An annual booster shot of 5-way leptospirosis was given to all bison staying on the Range.

# **H. PUBLIC USE**

## **1. General**

Total visitation for the year was down about 4% from 1997 with 187,800 people tallied. Visitors through the front gate totaled 156,300 with an additional 31,500 using the Ravalli Hill viewing site. This decrease was apparent throughout the year, with the exception of September, which saw an 11% increase. This may have much to do with the extreme summer heat and road construction (and lack of directional signs) along Highway 200 between Ravalli and Dixon. Also, more visitors seem to be coming during the "off" season of spring and fall to enjoy the Refuge. This was also reflected in the increase of use during Mother's Day weekend (3,500 - close to doubling the 1997 figures) and Memorial Day (6,800 - a 44% increase). Approximately 2,200 people visited the range during the 4th of July weekend, a decrease of 41% from 1997. Visitors from foreign countries decreased in number to just 3% of the people who registered at the Visitor Center. The highest percentage continues to be from Germany (17% of all foreign visitors registered) although total German registrants dropped more than half from 1997. Other visitors include 14% of registered foreign visitors coming from the United Kingdom, 12% from Canada and 7% from France. A



total of 52 countries were represented, including Croatia, Colombia, Malaysia and Kwajalein.

Of note was the celebration of the 90th anniversary of the establishment of the National Bison Range in 1908. A variety of special activities, handouts, news releases, displays and events led up to the "birthday bash" on May 23. A commemorative enameled pin featuring Big Medicine was available for sale. The Wagon Wheel Gift Shop commissioned local artist Donna Toelke to produce a special 90th anniversary poster of the Refuge. Other special activities included talks given by researchers about their studies on the Bison Range (Jack Hogg and bighorn sheep, Erick Greene and lazuli buntings, Gary Belovsky and grasshoppers, John Byers and pronghorn). A total of 61 visitors and staff attended the talks. On May 23, to celebrate the birthday, there were no charges for the scenic drives and about 400 visitors were treated to cake and lemonade. About 2,300 people visited the Refuge that day. As part of the birthday celebration, the Missoulian, the Lake County Leader and the CharKoosta News carried articles about the Bison Range. KECI-TV and KPAX-TV (Missoula) sent crews to film birthday activities and interviewed Jamieson about Range history. Jamieson recorded a piece on Bison Range history for airing on public radio KUFM's Field Notes program sponsored the Montana Natural History Center (MNHC) during the week of May 23.



Pat Jamieson, ORP, serves Birthday Cake at the 90th Birthday Celebration  
Robin Bown May 1998

Entrance fees were charged again this season with a \$4 per car Day Pass or a Bison Range season pass for \$10. All Golden Passes and the Federal Duck Stamp were accepted for admission. There were separate rates for commercial buses and vans. Fees were charged from the time the longer Red Sleep Mountain Drive opened May 9 through its closure October 13. Under the new Recreation Fee Program, 100% of the fees return directly to the Bison Range for public use.

**Table 16. Fee collections for the 1998 season.**

	<b>Fees Collected</b>
Day Passes	\$37,496.00
Tour Groups	528.00
Season Pass	820.00
Special Events*	2,570.00
Golden Eagle Pass	7,750.00
Golden Age Pass	2,510.00
Golden Access Pass - FREE	47 issued
Duck Stamps	1,950.00
<b>TOTAL</b>	<b>\$53,624.00</b>

\* Special events include teacher workshops and the Range Ride.

A total of \$51,674.00 was deposited to the new demonstration fee program. The largest expense from this fund was the dust control applied to the Red Sleep Mountain Drive, which worked extremely well. Other items purchased from this fund for public use include materials used for directional signs, reprinting of fee passes and the production of an informational brochure in Japanese. The balance carries over until the year 2002. The \$1,950.00 of Duck Stamp money goes into the national fund to purchase habitat. This is a sight increase over 1997 sales.

The Range received the Evaluation Report from the Customer Service Survey conducted last summer. Visitors rated the overall quality of services and facilities at 94% at good or excellent. The highest ratings were achieved for courtesy of employees (96% at good/excellent) and prompt service, accessibility of facilities and quality of brochures/maps (all at 95% good/excellent). The lowest rating was for opportunities of wildlife-dependent recreation (73%) which greatly depends on the visibility of the animals during a visit. This survey was scheduled to be completed yearly but was canceled because of sampling and design problems.

On May 26, Law Enforcement Officers Lynn Clark and Kyle Todd conducted a check of all visitors on the scenic drives to determine compliance with fee payments. Of the 130 vehicles stopped, 40 did not have a pass. This is a 31% noncompliance rate. Visitors



from the local area had a much lower compliance rate than distant visitors. A news release was issued reminding visitors of the fee and alerting locals there is a fee in effect.

Organized tours brought 1,079 visitors in 41 groups, down by 35% from 1997 numbers (and 1997 was down quite a bit from 1996). A wide range of tour groups came, with no one group dominating the numbers. Foreign groups accounted for nine of the tour groups with 274 visitors, doubling their numbers from 1997.

Visitors attending special events included 3,400 for Roundup, 200 riders for the annual Mission Rangers Saddle Club Ride in May and 194 in summer Day Camp programs (a decrease of 40% from 1997). Holiday numbers varied considerably when compared to 1997 with visitation as follows: Mother's Day, 3,500 (increase by 100%); Memorial Day, 6,800 (increase by 40%); Father's Day, 1,950 (decrease by 3%); Fourth of July, 2,200 (decrease by 41%); and Labor Day, 2,400 (decrease by 2%). Visitation for the holidays depends greatly on weather conditions, with nice weather bringing more people to the Refuge.

Scout visits to the Range included special activities for Cub Scout Day Camps, Girl Scout activities and the area Boy Scout Antler Pickup Project. In all, 360 Scouts participated in activities on the Range, an increase by 79% from 1997. Part of this increase was the invitation by local Troop 56 to other area Scouts to assist them in the Antler Pickup. A group of 22 Boy Scouts from Japan visited the Range in July.

Special Use Permits were issued to Native Americans to pick white sage (*Artemisia ludoviciana*) for personal use in cultural and religious ceremonies. Commercial collecting is not permitted. Quantity harvested is limited to one shopping bag worth of sage per adult, with a maximum limit of two bags of sage per vehicle. Three groups associated with the Confederated Tribes of the Grand Ronde Community of Oregon, Sioux, Navajo, or Iroquois/Canoy tribes received permits in June, July and September.

## **2. Outdoor Classrooms - Students**

A major emphasis for public use continues to be on education. School groups had 3,850 participants which spent approximately 15,000 hours in learning activities on the Bison Range (a 17 decrease from 1997). Schools were scheduled at both the Visitor Center, the Nature Ponds and other outdoor education sites to reduce conflicts at these areas during their visit. Groups received special programs presented at the Visitor Center by staff.

The Bison Range caters to all grade and ability levels from Head Start and developmentally disabled groups through graduate students and elder hostels. Of the 99 school groups visiting the Range this year, 398 students in 19 groups were in University classes and two foreign student groups had 45 students. The Refuge hosted 471 participants from alternative educational facilities, including home schools and elder hostels.

Information was provided for many student research papers and projects covering bison, genetics, brucellosis, population dynamics, behavior and management as well as other natural history topics ranging from pest management, bird houses and feeders



and native grasslands. Requests come from students throughout the United States as well as from local students.

### **3. Outdoor Classrooms - Teachers**

Some 375 teachers spent 1600 activity hours on the Bison Range participating in outdoor education activities with their students or at Teacher Workshops. The Spring Workshop, titled "Grassland Ecology and Leopold Education Project," was held May 1 and 2. Twenty-two participants attended with 17 attending the evening Leopold Education Project and staying for the special evening "Snipe Hunt" where they learned about evening wildlife. Teachers received OPI credits for attending this workshop. The Bison Range received an Environmental Education Grant (\$4,000) to prepare the workshop and buy supplies for this and other educational and interpretive activities.

### **4. Interpretive Foot Trails**

The Nature Trail located in the day use area was heavily used by school groups for outdoor education activities. Portions of the Teacher Workshops were conducted in this area. Brent Woodger and maintenance staff built supports and installed interpretive signs along the trail in time for the 90th anniversary celebration. The Grassland Trail, located behind the Visitor Center and built in 1997, is used in part to eliminate congestion in the Center. Because the Theater can seat only 40 at a time, larger school groups are split, with some students using the trails while some are watching the video. After a time, the groups are switched.

The Bitterroot and Highpoint Trails, accessed from the Red Sleep Mountain Drive, provides short walks to view the bitterroots in the spring and other wildflowers and to reach the highest point of the Range at 4,884 ft. An estimated 58,000 visitors made use of the various trails on the Refuge.

### **5. Interpretive Tour Routes**

There are four different interpretive tour routes. The 19-mile Red Sleep Mountain Drive gains 2,100 feet in elevation and is closed during the winter months. It opened for the season on May 9 and closed for the winter on October 13 (about a week and a half early for road repairs and cattle guard replacements). School buses and large tour buses usually use the shorter Prairie Drive and West Loop because of the difficulty of the longer drive.

The Winter Drive offers a two-way, 10-mile round trip when the upper reaches of the long tour are closed for the winter. It also provides excellent viewing for school buses, giving them early and late season viewing without traveling the winding Red Sleep Mountain Drive.

Traffic counters showed that approximately 120,000 people used Bison Range tour roads in 1997 with about 90,000 traveling the 19-mile Red Sleep Mountain Drive when it was open mid-May to mid-October. The balance used the shorter Prairie Drive and West Loop or the seasonal Winter Drive.



Recreation fee money was used to apply dust control to the gravel roads, again using calcium chloride flakes. It is the same application used last year which worked extremely well as keeping the dust down, improving safety and visitor viewing opportunities. Besides reapplying in areas along the flats, it was applied up Pauline Creek and on the east side switchback.

## **6. Interpretive Exhibits/Demonstrations**

Fees were again payable at the Visitor Center which brings a large number of visitors into the building. Once there, they can view displays on bison, bison history and other wildlife materials. Approximately 47,000 visitors were counted. An interpreter was always on duty to provide visitor information and to answer questions about the wildlife and habitats on the Range. The center was open weekdays from 8 a.m. to 7 p.m. and weekends and holiday from 9 a.m. to 7 p.m. during mid-May through the end of October, and from 8 a.m. to 4:30 p.m. on weekdays for the balance of the year.

An interactive touch screen computer program replaced the old APPLE II-E system with an orientation program, map, a "you be the refuge manager" quiz and video footage of the annual bison roundup. The refuge contracted with Montana InterActive from Great Falls to produce the program under a MOYOCO grant.

An interpretive kiosk in the Visitor Center parking area provided information about the refuge and visitor safety. The Field Guide to the National Bison Range, which includes a Range map, is available at this site.

Staff relocated the antler pile, located in front of the old headquarters for many years, from the housing area to just off the Visitor Center parking lot, along with its interpretive sign. The new location cuts down on congestion in the housing area and lends itself to more scenic photo opportunities.

Outreach activities included off-refuge talks and programs presented to approximately 1,000 people. Recipients were educational, governmental, resource and sportsmen's groups throughout western Montana. Earth Day was celebrated with an exhibit at the Charlo School Science Fair. Terri Middlemist set up displays, handed out free posters and contacted about 120 students. At a 4-H County Congress, she contacted about 20 people. Jamieson and Novak helped staff the USFWS table at the State Fair in Great Falls on July 30. This year's theme was the Prairie and Prairie Wetlands. Along with the glassed case exhibits of eagles and wolf, the booth again had the very popular touch table of feathers, hides and skulls. About 600 people stopped by the day Range personnel were there. Jamieson staffed an information table at the Montana Environmental Education Association annual meeting at Fairmont Hot Spring. She also judged the Wildlife, Weeds and Forestry sections of the Lake Country 4-H Fair on August 5. There were six entries in these categories.



Visitor Center bulletin board advising visitors of Refuge information and special events.  
TM 4/98



NBR display taken to the Charlo School Science Fair and Lake County 4-H Congress.  
TM 4/98



The Bison Range celebrated International Migratory Bird Day on May 9 by opening the Red Sleep Mountain Drive for the summer season. Activities included guided bird walks (26 participants), bluebird banding demonstrations and a talk on the trumpeter swan reintroduction at Pablo NWR presented by Dale Becker, biologist for the Confederated Salish and Kootenai Tribes.

News releases from the Range included information about prescribed burns held in late summer/early autumn. Other releases included information about the Teacher Workshops, activities available on Migratory Bird Day, operating hours of the Visitor Center, opening/closing of the scenic drives and fees.

Lobsang Tenpa, from Voice of America (Washington, DC) interviewed Jamieson about bison and the Bison Range. He was in the area to do a story on the local Yak ranch for a program to be aired in Tibet. A Special Use Permit was issued to Wendt Advertising to take footage for use in KOA television spots. The photographers did not request any special access and shot footage from the tour road. Lisa Wernick from CBS "Eye on People" interviewed Wiseman and filmed on the Refuge for a winter and holiday segment. Brooke Shannon interviewed Jamieson for a segment of "Montana Live!", a travel/vacation show filmed out of the Whitefish area, on December 10.

The annual Bison Roundup was well attended by local newspapers, including the Daily Interlake, Hungry Horse News, Missoula Independent and the Charlo High School paper. A film and news crew from KUFM public television filmed staff moving bison into the corral system and of the corral work for a for a segment to air on "Montana's Journal" in November. Writers/photographers from Montana Travel, the Outdoor Writer's Association and the Wildlife Conservation Society also attended. Media permits were issued to allow access to areas closed to the general public.

Jim Fowler, past host/co-host of Mutual of Omaha's Wild Kingdom television show, visited the National Bison Range July 28. About 130 people attended his presentation, including 4-H and Boy Scouts. He talked about conservation and getting young folks interested in wildlife. He was assisted by Beth Sorenson, a wildlife rehabilitator from Kalispell. A number of media attended the event, including KECI-TV from Missoula and the Lake County Leader, the CharKoosta News and the Missoulian newspapers.



Jim Fowler speaking at NBR Visitor Center

7/98 PJ

### **7. Other Interpretive Programs**

Nothing to report.

### **8. Hunting**

Nothing to report.

### **9. Fishing**

High precipitation in the spring made waters very muddy in early season. An estimated 500 individuals fished in open areas on the Bison Range. Fishing is allowed in accordance with state, tribal and refuge regulations along portions of Mission Creek and the Jocko River that lie within the boundaries of the Bison Range. A joint State and Tribal license and fishing stamp are required.

The Refuge celebrated National Fishing Week June 1-7 with free coloring pages for children. This year's theme was "Catch a Smile"

### **10. Trapping**

Nothing to report.

### **11. Wildlife Observation**

Visitors spent an estimated 300,000 activity hours observing wildlife along the Bison Range scenic drives and nature trails. Most often observed were bison, elk, pronghorn antelope, white-tail deer and mule deer.



## **12. Other Wildlife Oriented-Recreation**

Visitors to Roundup this year totaled 3,400, very close to the number that came in 1997. School groups were down about 21%, with a total of 24 schools and 1,191 students and teachers. During the two days of Roundup, classes were still limited to students from grades four and above for safety reasons due to the press of crowds. Younger students and those requiring special assistance were given an option of viewing loading operations later in the week. A Roundup Leaflet and video programs at the corrals provided schools and other visitors with information about the Roundup. Twenty-seven volunteers helped during this event by working gates, branding, directing visitors and talking to school groups.

National Wildlife Refuge Week was celebrated during Roundup. Information and free posters were distributed to all school groups. This will continue to be a yearly event, as part of the Service's "100 on 100" campaign to raise awareness of the Refuge system by its 100th anniversary in the year 2003.

## **13 Camping**

Campgrounds for the general public are not provided on the Bison Range. The Environmental Education Campground is available to educational groups. The University of Idaho had 37 and 25 students at each of two camps during a 2-week period in May for a Field Ecology Trip.

## **14. Picnicking**

School groups and summer day camps from the YMCA, city parks and recreation and Boys Clubs used the shaded picnic area as a study and staging area. This site was also welcomed by visitors since there are few visitor services nearby. Accessible tables, restrooms and nature trail are available at this site.

The Kickinghorse Job Corps received a Special Use Permit for a Cultural Day celebration held in October in the picnic area. About 250 participated in a Navajo ceremony, including butchering a sheep and drying deer meat.

## **15. Off-Road Vehicle Use**

Nothing to report.

## **16. Other Non-Wildlife Oriented Recreation**

Nothing to report.

## **17. Law Enforcement**

Law enforcement for the Refuge Complex is handled by Refuge personnel. Manager Dave Wiseman, Assistant Manager Bill West, and Biology Technician Lynn Clark all have LE status. Clark as primary LE officer two days a week during May through October, with Kyle Todd, seasonal personnel, the other five days. West, Wiseman, and Clark provided backup and responded to after-hour incidents. West supervised the LE program.

Visitor assistance in the summer is generally vehicle related: keys locked in car, overheated vehicles and overheated brakes. Lots of visitor contact results in warnings regarding visitors walking away from their vehicle and disregard for general safety precautions.

During January, West responded to a report of people night lighting and shooting into the Range. February, West spent three days interviewing four suspects and two witnesses related to the spotlighting case along the north boundary of the Range. The Montana Fish, Wildlife, and Park warden cited one juvenile in the case. No refuge violations were pursued.

The antler poaching/trespass case went to court on January 12. The individual did not show. The next step is up to the Assistant U.S. Attorney and Special Agent Rick Branzell.

Clark investigated a dead deer found on the North Boundary road and a poaching incident on private land near the Refuge. Both incidents occurred in October.

During April, Clark, West, and Wiseman investigated a report of a vehicle going around the locked gate at the end of the Winter Drive. The vehicle drove the Red Sleep Mountain Drive backwards. West met and talked with the people involved and no citations were issued.

Todd assisted with crowd control and parking for Secretary Babbitt's trip to the Blackfoot on June 5. Babbitt announced the listing of the bull trout.

Todd, Clark and West requalified with firearms on September 22 with instructors Ray Washtak, Rick Branzell, and Pat Gonzales.

The evidence freezer was cleaned out in September by Todd and Jamieson. Special Agent Branzell boxed and mailed assorted eagle, hawk, and owl carcasses to the Eagle Repository in Denver.

NBR Complex Refuge Officers are also responsible for LE on Ninepipe and Pablo NWRs and the Mission Valley WPAs. On Ninepipe NWR, Todd responded to reports of dogs running loose, and Clark assisted with a report of vandalism to an osprey nest on State Land. No incidents were reported at Pablo NWR. A stolen vehicle was recovered by Officer Todd on Sandmark WPA. Also on Sandmark WPA, Officer Clark investigated destruction of a gate. Clark also investigated a truckload of trash on Anderson WPA and a dead deer on Montgomery WPA. For more information on Law Enforcement on Ninepipe and Pablo NWRs and the WPAs, see the individual narratives.



**Table 16 Violation Notices on NBR Complex - 1998**

Year	NBR Complex Site	Violation	Number of Cases	Bond	Disposition
97/98	NBR	Trespass/Court Judgement	1	\$100/200	Pending
1998	NBR	Driving wrong way on one-way road	2	\$ 75.00	Closed
1998	NBR	Possession or use of fire arm	1	\$150.00	Closed
1998	NNP	Entering a closed portion of the Refuge	2	\$100.00	Closed
TOTAL			1	\$300.00	Pending
			5	\$500.00	Closed

### **18. Cooperating Associations**

Glacier Natural History Association, West Glacier, Montana has been operating a book store at NBR Visitor Center since 1981. Each year GNHA and NBR staffs review the books, posters and videos available to the public. In honor of the 90th Birthday of the National Bison Range, GNHA developed a pin featuring Big Medicine, the albino bison that lived on the Refuge from 1933 to 1959. Also created for the birthday was an NBR print from an oil painting by local artist Donna Toelke. Toelke and Diane Breuer of the Wagon Wheel Gifts, at the entrance, collaborated on this project to bring an affordable collectable to NBR visitors. The print was available in a notecard, too.

Aid to NBR was 14% based on 1997 sales, amounting to \$3830.00. This money was used as cost share to match other grants. Monies from this aid were used to purchase clear brochure holders and photo enlargements to be used with the portable display units. The displays were seen at CCP open houses, Montana Educators Association meeting, Charlo Elementary Science Fair, and Lake County 4-H Congress.

The money from the sale of antlers by the Boy Scouts is placed in a restricted account for NBR. This year's money was used to help clean and maintain the video equipment, purchase new videos used in the Visitor Center, a membership in Crown of the Continent Ecosystem Education Consortium (COCEEC), and the purchase of cake and lemonade for the birthday party held May 23. The balance is being held in the account for a project yet to be named.

Pat Jamieson and Terri Middlemist attended the Quarterly Board Meetings held in West Glacier. Sales in fiscal year 1998 amounted to \$22,914.00. Jamieson was also the NBR representative on the GNHA Strategic Planning sessions held throughout the year.

## **I. EQUIPMENT AND FACILITIES**

### **1. New Construction**

There was no new construction in 1998.

### **2. Rehabilitation**

Pat Thomas (landscape architect, Lolo National Forest) was contracted in 1997 to produce a design for the front entrance. A new design for easier and safer access off Highway 212 and cost for such is being determined.

### **3. Major Maintenance**

Dust abatement (calcium chloride) was applied to the Red Sleep Mountain Drive with MMS money (\$9112). It is the application that was used in 1997, and worked well in keeping the dust down, improving safety and visitor viewing opportunities.

Riverside Contracting was awarded a contract for \$23,725.00 to chip seal the Visitor Center road, parking lot, and staff housing area with MMS funds.

During the week of August 17th, a contractor did roof repair and replacement on the Visitor Center, which has been leaking into the Manager's office. The contract went to Lombardi and Johnson, Inc. for \$9,610.00 with MMS funds. While working on the area over the display room, their pounding loosened lights and light bulbs. After the roofing was done, Driscoll repaired and replaced the lights.

An above ground waste tank was purchased with hazardous waste dollars from Regional Office. O'Day Equipment was the vendor at \$5,125.00.

Contractors spent a week mid-June removing asbestos from two residences and the slaughter house. Staff worked on the slaughter house after this removal.

Maintenance staff and the YCC crew erected a wood rail fence and replaced the wire fence on portions of the horse pasture. The pasture was expanded to include an unused corner of the picnic grounds. Fencing was also completed along the north boundary of the Range after the Tribal Historical Preservation Office surveyed the area and okayed work.

### **4. Equipment Utilization and Replacement**

The following vehicles were sold, CJ-7 Jeep, 1992 Dodge pickup, and Ford tractor, loader/backhoe.



We received a CJ-7 Jeep to replace the old jeep. A white suburban replaces the old Blazer. A Ford Ranger was added to the fleet. Bob's truck went to Rox Rodgers at Creston. A 3/4 ton Dodge replaced the 1987 Chevrolet. A 3/4 ton Ford supercab replaced the 1992 Dodge. This vehicle went to Creston for Ray Washtak. All vehicles were purchased with MMS funds.

In June, we were notified by the Regional Office that they had \$6,475 from a multiple axle trailer and \$3,494 from a single axle trailer proceeds from the sale of personal property. Since these dollars have to be spent on like property, they were appealing to field stations to spend this for trailers where needed. NBR purchased a tandem axle 16 foot trailer and a tandem equipment hauling trailer with the multiple axle dollars. An ATV trailer, three boat trailers, and a utility trailer were purchased with the single axle dollars.

### **5. Communications Systems**

New vehicle radios were sent to Denver for programming (February).

The NBR office expanded phone lines from three to five. This will help accommodate the increase from one modem line to three as Wiseman and Krantz now have Internet and cc-mail access for their own computers.

### **6. Computer Systems**

Robert Benton (RO-Administrative and Support Services) spent March 23-25 at the office trouble shooting a long list of computer problems and questions. Upgrading computers, E-mail capabilities, networking and telephone upgrade needs were also discussed.

### **7. Energy Conservation**

Nothing to report.

### **8. Other**

Nothing to report.

## **J. OTHER ITEMS**

### **1. Cooperative Programs**

Dave Wiseman prepared a Special Use Permit (SUP) for the Confederated Salish and Kootenai Tribe for water volume and quality monitoring sites on the Range. This was accomplished to formalize the existing cooperative monitoring project. However, the SUP did expand the extent and locations of sampling and information reporting requirements for data.

A special use permit was issued to CS&KT to install and monitor a fish trap in Mission Creek to collect data on fish populations and migrations.

The cooperative antler salvage effort with the Charlo Boy Scout Troop and the Glacier National History Association continued for the thirteenth year. This year 266 scouts and 52 adults spent part of seven days (1236.5) hours collecting shed deer and elk antlers. Several youth and adults spent more than one day on the refuge. This year scouts and leaders from variety of Troops came to help, with 238 scouts and 34 adults on the Refuge on April 25. Three adults spent two days (15 hours) sorting, weighing, and selling.

Sixty pounds of deer antlers were collected, with 5 matched sets. Three hundred and three pounds of elk antlers were collected, including two matched sets. There were also 5 miscellaneous skulls and shoulder blades and one bison skull this year. The sale grossed \$2,264.30, with a permit fee of \$107.32 going to the Service, a donation of \$1,395.10 to GNHA, sales expenses of \$118.00, and the Boy Scouts getting \$643.88 going to their treasury. The gross sale amount was down \$935.44 from 1997.

## **2. Other Economic Uses**

Nothing to report.

## **3. Items of Interest**

Nothing to report.

## **4. Credits**

Bill West - Sections D3, D4, F1-13

Lynn Clark - Sections G1-17

Lindy Garner - Sections D1, D2

Pat Jamieson - Sections E4, H1-16

Joan Krantz - Sections E1, E5, I5, I6

Terri Middlemist - Sections A, B, C, D5, E2, E7, H17-18, I1-4, J1-4, Word Processing and Assembly

# **K. FEEDBACK**

Nothing to report.



**FACTS** from the National Wildlife Refuge System

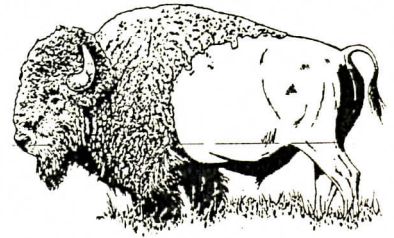
## National Bison Range

Contact: David Wiseman  
Refuge Manager

Address: National Bison Range  
132 Bison Range Road  
Moiese, MT 59824

Phone: 406/644-2211  
Fax: 406/644-2661

E-Mail: R6RW\_NBR@FWS.GOV



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### Location:

In the Mission Valley of Northwest Montana within the exterior boundaries of the Flathead Indian Reservation. The refuge is in both Lake and Sanders Counties. The Main Entrance is located along Highway 212 at Moiese, 50 miles northwest of Missoula and 80 miles south of Kalispell.

### Establishing Purposes:

Lands were acquired to provide "...for a permanent national bison range for the herd of bison..." (35 Stat. 267-8, May 23, 1908), to provide fencing, buildings, and "enlarging the limits heretofore establishes so as to make the total acreage not to exceed twenty thousand acres..." (35 Stat. 1051, March 4, 1909), to function "...as refuges and breeding grounds for birds." (Executive Order 3596, December 22, 1921), and "...to provide adequate pasture for the display of bison in their natural habitat at a location readily available to the public,..." (72 Stat. 561, August 12, 1958).

### Acreage:

18,566 acres.

### Landscape Characteristics:

- ▶ Located within the Columbia River Basin Ecoregion. Waters drain from the Refuge through Mission Creek and the Jocko River to the Flathead River which connects with the Clark Fork, which flows into the Columbia.
- ▶ Elevations range from 2,582 feet above sea level at headquarters to 4,885 feet at High Point.
- ▶ The Range is a diverse ecosystem of grasslands, Douglas fir and ponderosa pine forests, riparian areas and ponds. It is one of the last intact Palouse prairie native grasslands remaining in the United States.
- ▶ It is essentially a small, low-rolling mountain connected to the Mission Mountain Range to the east by a gradually descending spur.
- ▶ Much of the Range was once surrounded by prehistoric Lake Missoula, which was formed by a glacial dam on the Clark Fork River 10,000 years ago. Old beach lines are still evident on north-facing slopes.
- ▶ Located in the Flathead Valley of western Montana, the microclimate of this area is characterized by relatively mild winter temperatures, little wind and dry conditions. Average yearly precipitation is 13 inches.

### Wildlife:

- ▶ The diverse prairie supports bison, white-tailed deer, mule deer, pronghorn antelope and coyotes.
- ▶ The montane forest habitat supports a variety of wildlife including elk, bighorn sheep, mountain goat, black bear, mountain lion and bobcat.
- ▶ Smaller mammals include voles, bats, raccoons, weasels, skunks, badgers, marmot, ground squirrel, muskrat and porcupine.
- ▶ Neotropical Migratory Bird Surveys and Breeding Birds Surveys have recorded a total of 211 bird species since establishment.
- ▶ Grassland birds find good breeding habitat within the diverse prairie. These include vesper sparrows, mountain bluebirds, grasshopper sparrows, clay-colored sparrows, western



meadowlarks, lazuli bunting, northern harriers and short-eared owls.

- ▶ Forest passerines include the red-breasted nuthatch, Lewis' woodpecker, dusky flycatcher, western tanager, and western wood-pewee.
- ▶ No endangered or threatened species breed on the Range. Bald eagles are occasionally seen, especially during the winter. Grizzly bear sightings are reported once every few years as animals move across the Range.
- ▶ Native fish species include the northern squawfish, suckers and whitefish. Westslope cutthroat trout and bull trout may be found in the Jocko River. Rainbow and brown trout have been introduced into the waters.
- ▶ Reptile species consist of the western painted turtle and six types of snakes. Pacific tree frogs are common, often seen and heard in the spring. Valley-wide studies of amphibians have shown low and/or non-existent populations of leopard and spotted frogs.

#### **History:**

- ▶ Established in 1908 with the first Congressional appropriations ever made for the purchase of lands for a wildlife refuge. It is one of the oldest wildlife refuges in the nation and is administered by the U.S. Fish and Wildlife Service as part of the National Wildlife Refuge System.
- ▶ It was purchased at appraised value from the "Confederated Tribes of the Flathead, Kootenai and Pend d'Orielle" (present day Confederated Salish and Kootenai Tribes).
- ▶ The original herd of bison released in 1909 was purchased with private money raised by the American Bison Society and donated to the Refuge.

#### **Cultural Resources:**

- ▶ The Bison Range is within the boundaries of the Flathead Indian Reservation, which is governed by the Confederated Salish and Kootenai Tribes.
- ▶ White, or silver, sage (*Artemisia ludoviciana*) is collected from the Range under special use permits issued to Native American tribal members. The sage is used for a variety of religious ceremonies.
- ▶ The Barnier Archaeological Survey of 1969 located some lithic scatters (rock points and flakes) and pits which may have been used to catch eagles or for vision quests.

#### **Recreational Uses:**

- ▶ There are two scenic drives open all year. The 19-mile Red Sleep Mountain Drive is open in the summer along with the shorter Prairie Drive, and the Winter Drive and West Loop are available in the winter.
- ▶ The Visitor Center has displays on bison, natural history and Range history, with a theater and a book sales area also available.
- ▶ Short nature trails are found along Mission Creek, in the grassland by the Visitor Center, at the Bitterroot Trail and at High Point.
- ▶ There is a picnic area with tables, grills, pit toilets and drinking water.
- ▶ Fishing is allowed along Mission Creek and the Jocko River with the appropriate Reservation licenses.

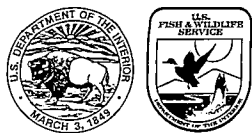
#### **Other Uses:**

- ▶ The Refuge is an Environmental Education site. Student groups can schedule educational programs throughout the year.
- ▶ There is a 60-folder Environmental Education Library available for teachers to borrow for classroom use. Included in this lending program are educational video tapes.
- ▶ A number of researchers have projects on the refuge under Special Use Permits. Current studies include bighorn sheep, pronghorn antelope, grasshoppers, rattlesnakes, water quality, biological weed control and bison DNA testing.



**AMERICA'S NATIONAL WILDLIFE REFUGES...**  
**where wildlife comes naturally!**





U.S. Fish & Wildlife Service

# Wildlife Biologue

## *American buffalo (Bison bison)*

It is believed that buffalo, or bison, crossed over a land bridge that once connected the Asian and North American continents. Through the centuries buffalo slowly moved southward, eventually reaching as far south as Mexico and as far east as the Atlantic Coast, extending south to Florida. But the largest herds were found on the plains and prairies from the Rocky Mountains east to the Mississippi River, and from Great Slave Lake in Canada to Texas.

Because the great herds were nearly gone before any organized attempts were made to survey populations, we may never know just how many buffalo once roamed North America, although estimates range from

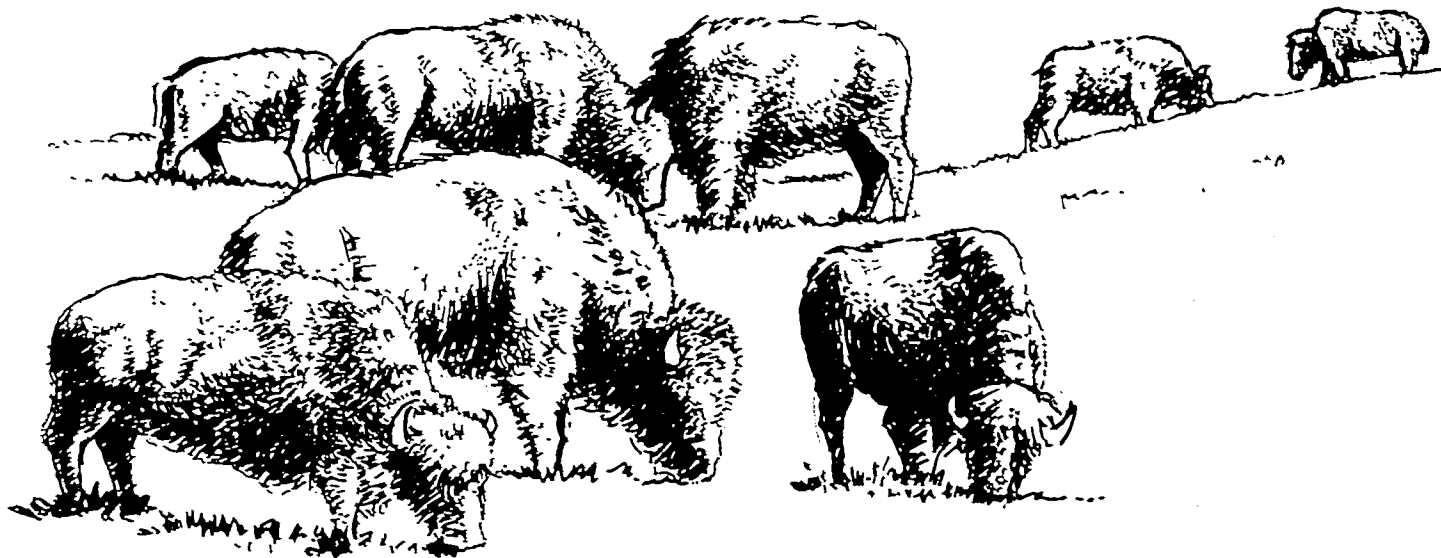
30 to 75 million. "The moving multitude... darkened the whole plains," wrote Lewis and Clark, who encountered a herd at South Dakota's White River in 1806.

Although the buffalo's size and color, which ranges from light to dark brown, vary in different areas of the country, experts generally agree that all American buffalo belong to the same species. The differences in appearance probably result from the variety of environments in which they live.

Like their close relatives, domestic cattle and sheep, buffalo are cloven-hooved. Both males and females have a single set of

hollow, curved horns. The male buffalo, called *bulls*, are immense, often weighing a ton or more and standing 5 to 6 feet high at the shoulders. The huge head and great hump covered with dark brown woolly hair contrast sharply with the relatively small hips. The females, or *cows*, are not as massive. Despite their great size and bulkiness, buffalo have amazing mobility, speed, and agility, and are able to sprint at speeds of up to 30 mph.

In the spring, buffalo begin to shed their heavy winter coats, and soon their hair hangs in tatters. To hasten shedding and possibly to relieve their itching skin, buffalo rub against large stones and trees. By late



*Although estimates indicate there were between 30 to 75 million buffalo in North America at one time, the great herds were reduced to less than 300 animals by 1900. Today, buffalo populations are strong once again, with an estimated 200,000 roaming the plains, many at National Parks and National Wildlife Refuges.*



spring, the only remaining long hairs are on the head, forelegs, and hump. To escape the torment of attacking insects, buffalo wallow in dust or sand.

With the arrival of the breeding season in mid-to late summer, the herds become restless. The bulls, aloof most of the year, now drift among the cows and calves. Noticeably quiet at other times, the bulls bellow hoarsely and become quarrelsome. Many fights occur over females, and the combatants, with lowered heads, paw the earth defiantly.

Cows give birth usually every year to one tawny to buff-colored calf. Most of the calves are born between the middle of April and end of May, but some arrive as late as October. At birth, the calves have only a faint suggestion of the hump they will develop later. Buffalo begin grazing (primarily on grasses) while still very young, although some may continue to nurse until they are nearly a year old. Buffalo may live to be about 20 years of age.

By 1800, the small buffalo herds east of the Mississippi River were gone. Buffalo may have been killed to protect livestock and farmlands in that region. With westward expansion of the American frontier, systematic reduction of the plains herds began around 1830, when buffalo hunting became the chief industry of the plains.

Organized groups of hunters killed buffalo for hides and meat, often killing up to 250 buffalo a day.

Unfortunately, many people at the time also wanted to eradicate buffalo as a way to take away the livelihood and well-being of Native Americans. Native American tribes depended on the buffalo's meat and hides, and many still today believe the animal has special spiritual and healing powers, making it an important part of their culture.

The construction of the railroads across the plains further hastened the depletion of buffalo populations. Hunting from train windows was advertised widely and passengers shot them as the buffalo raced beside the trains. By 1883 both the northern and the southern herds had been destroyed. Less than 300 wild animals remained in the U.S. and Canada by the turn of the century out of the millions that once lived there.

Conservation of the buffalo came slowly. In May 1894, Congress enacted a law making buffalo hunting in Yellowstone National Park illegal. Eight years later, money was appropriated to purchase 21 buffalo from private herds to build up the Yellowstone herd. With adequate protection, this herd has steadily increased until it numbers almost 3,000 animals today. Hundreds of buffalo also inhabit the National Bison



Range in the Flathead Valley of Montana, the Wichita Mountains National Wildlife Refuge in southwest Oklahoma, the Fort Niobrara National Wildlife Refuge in northern Nebraska, the Sullys Hill National Wildlife Refuge in northwestern North Dakota, and Walnut Creek National Wildlife Refuge in Central Iowa.

Many other private herds have boosted the buffalo's overall population over the years as well. While the present herds, numbering about 200,000 buffalo in all, are not as large as the great herds that once ranged the North American continent, they are large enough to ensure the continued well-being of the American buffalo for generations to come.

*Male buffalo often weigh a ton or more and stand 5 to 6 feet high at the shoulders. The huge head and great hump covered with dark brown woolly hair contrast sharply with the relatively small hips. Despite their great size and bulkiness, buffalo have amazing mobility, speed, and agility.*

*Usually solitary, male buffalo join female herds during the mating season, often quarreling with other males over mates. While these males are only sparring, in a serious battle the bulls' behavior would be more aggressive.*

